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FINAL
ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT

SOUTHERN CALIFORNIA EDISON'S ELDORADO–IVANPAH TRANSMISSION LINE PROJECT

NOVEMBER 2010

VOLUME II

STATE OF CALIFORNIA
PUBLIC UTILITIES COMMISSION

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TABLE OF CONTENTS

Executive Summary ES-1

1. Introduction 1-1
1.1 Overview of the Core Proposed Project, Alternatives, and the Whole of the Action / Cumulative Action 1-1
1.1.1 The Core Proposed Project Evaluated Under CEQA/NEPA 1-1
1.1.2 Additional Projects Considered in this EIR/EIS 1-5
1.2 Purpose, Need, and Objectives 1-9
1.2.1 Applicant's Objectives 1-9
1.2.2 Background Information 1-10
1.2.3 State Purpose and Need 1-14
1.2.4 Federal Purpose and Need 1-14
1.2.5 Joint State and Federal Objectives 1-17
1.3 Other Agency Use of the EIR/EIS 1-17
1.4 Overview Permitting and Environmental Review Process 1-20
1.4.1 Permitting Process 1-20
1.4.2 Opportunities for Public Review and Comment 1-20
1.5 Reader's Guide to the Document 1-21
1.5.1 Organization of the EIR/EIS 1-21
1.5.2 Surveys, Studies, and Other Documents Referenced in the EIR/EIS 1-22

2. Description of Proposed Project and Alternatives 2-1
2.1 Introduction 2-1
2.1.1 Transmission System Background Information 2-2
2.2 Description of the Proposed Project 2-6
2.2.1 Core Project Description (NEPA/CEQA) 2-6
2.2.2 Whole of the Action Description (CEQA)/Cumulative Action (NEPA) 2-35
2.3 Project Alternatives 2-45
2.3.1 Alternatives Screening Process 2-45
2.3.2 Alternatives Fully Analyzed in the Draft EIR/EIS 2-50
2.3.3 Alternatives Considered but Eliminated from Further Analysis 2-65
2.3.4 Identification of the Environmentally Superior Alternative (CEQA) / Preferred Alternative (NEPA) 2-68
2.4 Project Construction 2-68
2.4.1 Eldorado–Ivanpah Transmission Line Construction 2-69
2.4.2 Subtransmission Line Construction 2-78
2.4.3 Distribution Line Construction 2-78
2.4.4 Ivanpah Substation Construction 2-79
2.4.5 Telecommunication System Installation 2-81
2.4.6 Land Disturbance 2-83
2.4.7 Construction Workforce and Equipment 2-93
2.4.8 Construction Schedule 2-94
2.4.9 Hazardous Materials and Waste Management 2-95
2.5 Operation and Maintenance Procedures 2-96
2.5.1 Powerlines 2-96
2.5.2 Substations 2-97
2.5.3 Telecommunication System 2-98

2.5.4 Decommissioning....2-98
2.6 Cumulative Projects....2-99
2.7 Applicant Proposed Measures....2-99

3. Environmental Analysis....3.1-1
3.1 Introduction to Environmental Analysis....3.1-1
3.1.1 Regulatory Framework....3.1-2
3.1.2 Organization of the Environmental Analysis....3.1-3
3.1.3 Underlying Assumptions....3.1-7
3.2 Visual Resources....3.2-1
3.2.1 Environmental Setting....3.2-1
3.2.2 Applicable Laws, Regulations, and Standards....3.2-37
3.2.3 Impact Analysis....3.2-43
3.2.4 Mitigation Measures....3.2-59
3.2.5 Whole of the Action / Cumulative Action....3.2-59
3.2.6 Combined Impact of EITP and ISEGS....3.2-67
3.3 Air Quality and Greenhouse Gases....3.3-1
3.3.1 Environmental Setting....3.3-1
3.3.2 Applicable Laws, Regulations, and Standards....3.3-5
3.3.3 Impact Analysis....3.3-8
3.3.4 Mitigation Measures....3.3-19
3.3.5 Whole of the Action / Cumulative Action....3.3-20
3.3.6 Combined Impact of EITP and ISEGS....3.3-34
3.4 Biological Resources....3.4-1
3.4.1 Environmental Setting....3.4-1
3.4.2 Applicable Laws, Regulations, and Standards....3.4-67
3.4.3 Impact Analysis....3.4-74
3.4.4 Mitigation Measures....3.4-105
3.4.5 Whole of the Action / Cumulative Action....3.4-111
3.5 Cultural Resources and Native American Values....3.5-1
3.5.1 Environmental Setting....3.5-1
3.5.2 Applicable Laws, Regulations, and Standards....3.5-8
3.5.3 Impact Analysis....3.5-11
3.5.4 Mitigation Measures....3.5-23
3.5.5 Whole of the Action / Cumulative Action....3.5-23
3.5.6 Combined Impact of EITP and ISEGS....3.5-27
3.6 Geology, Soils, Minerals, and Paleontology....3.6-1
3.6.1 Environmental Setting....3.6-1
3.6.2 Applicable Laws, Regulations, and Standards....3.6-26
3.6.3 Impact Analysis....3.6-30
3.6.4 Mitigation Measures....3.6-48
3.6.5 Whole of the Action / Cumulative Action....3.6-48
3.6.6 Combined Impact of EITP and ISEGS....3.6-56
3.7 Hazards, Health, and Safety....3.7-1
3.7.1 Environmental Setting....3.7-1
3.7.2 Applicable Laws, Regulations, and Standards....3.7-17
3.7.3 Impact Analysis....3.7-23
3.7.4 Mitigation Measures....3.7-37
3.7.5 Whole of the Action / Cumulative Action....3.7-38
3.7.6 Combined Impact of EITP and ISEGS....3.7-52
3.8 Hydrology and Water Quality....3.8-1

3.8.1 Environmental Setting 3.8-1
3.8.2 Applicable Laws, Regulations, and Standards 3.8-16
3.8.3 Impact Analysis 3.8-20
3.8.4 Mitigation Measures 3.8-33
3.8.5 Whole of the Action / Cumulative Action 3.8-34
3.8.6 Combined Impact of EITP and ISEGS 3.8-44
3.9 Land Use 3.9-1
3.9.1 Environmental Setting 3.9-1
3.9.2 Applicable Laws, Regulations, and Standards 3.9-14
3.9.3 Impact Analysis 3.9-19
3.9.4 Mitigation Measures 3.9-24
3.9.5 Whole of the Action / Cumulative Action 3.9-25
3.9.6 Combined Impact of EITP and ISEGS 3.9-29
3.10 Noise 3.10-1
3.10.1 Environmental Setting 3.10-1
3.10.2 Applicable Laws, Regulations, and Standards 3.10-7
3.10.3 Impact Analysis 3.10-10
3.10.4 Mitigation Measures 3.10-18
3.10.5 Whole of the Action / Cumulative Action 3.10-19
3.10.6 Combined Impact of EITP and ISEGS 3.10-23
3.11 Public Services and Utilities 3.11-1
3.11.1 Environmental Setting 3.11-1
3.11.2 Applicable Laws, Regulations, and Standards 3.11-3
3.11.3 Impact Analysis 3.11-6
3.11.4 Mitigation Measures 3.11-13
3.11.5 Whole of the Action / Cumulative Action 3.11-13
3.11.6 Combined Impact of EITP and ISEGS 3.11-22
3.12 Recreation 3.12-1
3.12.1 Environmental Setting 3.12-1
3.12.2 Applicable Laws, Regulations, and Standards 3.12-4
3.12.3 Impact Analysis 3.12-6
3.12.4 Mitigation Measures 3.12-10
3.12.5 Whole of the Action / Cumulative Action 3.12-10
3.12.6 Combined Impact of EITP and ISEGS 3.12-14
3.13 Socioeconomics, Population and Housing, and Environmental Justice 3.13-1
3.13.1 Environmental Setting 3.13-1
3.13.2 Applicable Laws, Regulations, and Standards 3.13-9
3.13.3 Impact Analysis 3.13-11
3.13.4 Mitigation Measures 3.13-16
3.13.5 Whole of the Action / Cumulative Action 3.13-16
3.13.6 Combined Impact of EITP and ISEGS 3.13-18
3.14 Traffic and Transportation 3.14-1
3.14.1 Environmental Setting 3.14-1
3.14.2 Applicable Laws, Regulations, and Standards 3.14-6
3.14.3 Impact Analysis 3.14-6
3.14.4 Mitigation Measures 3.14-12
3.14.5 Whole of the Action / Cumulative Action 3.14-13
3.14.6 Combined Impact of EITP and ISEGS 3.14-16

4. Comparison of Alternatives 4-1
4.1 Introduction 4-1
4.2 Summary of Alternatives 4-1
4.2.1 No Project / No Action Alternative 4-2
4.2.2 Transmission Line Routing Alternatives 4-3
4.2.3 Telecommunication Alternatives 4-4
4.3 Comparison of Environmental Impacts 4-5
4.4 Identification of the Environmentally Superior Alternative (CEQA) / Agency Preferred Alternative (NEPA) 4-7

5. Cumulative Scenario and Impacts 5-1
5.1 Introduction 5-1
5.2 Cumulative Projects 5-1
5.2.1 Past and Present Projects / Existing Cumulative Conditions 5-13
5.2.2 Reasonably Foreseeable Future Projects 5-17
5.3 Cumulative Impact Analysis 5-22
5.3.1 Aesthetic and Visual Resources 5-23
5.3.2 Air Quality and Greenhouse Gases 5-41
5.3.3 Biological Resources 5-45
5.3.4 Cultural Resources and Native American Values 5-58
5.3.5 Geology, Soils, Minerals, and Paleontology 5-63
5.3.6 Hazards, Health, and Safety 5-67
5.3.7 Hydrology and Water Quality 5-77
5.3.8 Land Use 5-84
5.3.9 Noise 5-88
5.3.10 Public Services and Utilities 5-92
5.3.11 Recreation 5-96
5.3.12 Socioeconomics 5-99
5.3.13 Transportation and Traffic 5-103

6. Other CEQA and NEPA Considerations 6-1
6.1 Significant Unavoidable Adverse Impacts 6-1
6.1.1 Ivanpah Solar Electric Generating System Project 6-2
6.1.2 Combined Impact of EITP and ISEGS 6-3
6.2 Significant Irreversible and Irretrievable Commitment of Resources 6-3
6.2.1 Energy and Materials Consumption 6-4
6.2.2 Hazards and Hazardous Materials 6-4
6.2.3 Land Disturbance 6-4
6.2.4 Cultural Resources 6-5
6.2.5 Geology, Soils, Minerals, and Paleontology 6-6
6.2.6 Land Use 6-7
6.2.7 Visual Impacts 6-7
6.2.8 Ivanpah Solar Electric Generating System Project 6-8
6.3 Growth-Inducing Effects 6-9
6.3.1 Workforce for the Proposed Project / Proposed Action 6-9
6.3.2 Provisions for Additional Electric Power 6-10
6.3.3 Ivanpah Solar Electric Generating System Project 6-11

7. Consultation and Coordination 7-1
7.1 Public Participation and Notification 7-1
7.1.1 Scoping Process 7-1
7.1.2 Notice of Availability 7-4
7.1.3 Draft EIR/EIS Public Hearings / Meetings and Comments 7-4
7.1.4 Document Repository Sites 7-5
7.1.5 Project Notification List and Document Distribution List 7-6
7.2 Organizations and Persons Consulted 7-6
7.3 Preparers and Contributors 7-7

8. References 8-1

9. Mitigation Monitoring Plan 9-1

APPENDICES

A-1 Alternatives Screening Report
A-2 Construction Workforce and Equipment
B-1 Biological Technical Report
B-2 2009 and 2010 Desert Tortoise Surveys
B-3 Supplemental Biotechnical Report: 2010 Botanical Survey
B-4 2010 Raptor Survey
B-5 Delineation of Waters of the United States and Department of Fish and Game Jurisdictional Habitats for the Eldorado—Ivanpah Transmission Project, March 2010
C Aesthetic Resources Documents
D Air Quality and Greenhouse Gases
E Scoping Summary Report
F Programmatic Agreement with CA and NV SHPOs (TBA for publication of the FEIR/EIS)
G. Responses to Comments on the Draft EIR/EIS

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Tables

Table ES-1 Summary Comparison of Components of the Proposed Project and Alternatives ES-8
Table ES-2 Sensitive Environmental Resource / Issue Areas Identified during the Scoping Process ES-11
Table ES-3 Comments on the DEIR/EIS ES-12
Table ES-4 Applicant Proposed Measures ES-12
Table ES-5 EITP Direct, Indirect, and Cumulative Effects and Mitigation Measures ES-27
Table 1-1 Ivanpah Dry Lake Area New Generation Interconnection Requests 1-5
Table 1-2 Major Permits, Approvals, and Consultations 1-18
Table 2-1 Summary of EITP Components 2-9
Table 2-2 250-Foot-Wide ROW Locations 2-11
Table 2-3 Major Deviations from the Existing ROW 2-12
Table 2-4 Estimated Number and Type of Proposed New Transmission Structures 2-26
Table 2-5 Existing 115-kV Transmission Structures to be Replaced by the Proposed Project 2-26
Table 2-6 Alternatives Considered in the Screening Analysis 2-46
Table 2-7 Results of the Alternatives Screening Process 2-47
Table 2-8 Comparison of Retained Alternatives with the Proposed Project 2-48
Table 2-9 Proposed Construction Yards and Helicopter Staging Areas Location 2-70
Table 2-10 Proposed Guard Structure Locations 2-76
Table 2-11 230-kV Transmission Line Estimated Land Disturbance 2-84
Table 2-12 Subtransmission Line Estimated Land Disturbance 2-85
Table 2-13 Distribution Line Loop Estimated Land Disturbance 2-85
Table 2-14 Telecommunication System Estimated Land Disturbances 2-85
Table 2-15 Estimated Additional Land Disturbance for Transmission Line Alternative Route A 2-87
Table 2-16 Estimated Additional Land Disturbance for Transmission Line Alternative Route B 2-88
Table 2-17 Estimated Additional Land Disturbance for Transmission Line Alternative Route C 2-89
Table 2-18 Estimated Additional Land Disturbance for Transmission Line Alternative Route D 2-89
Table 2-19 Estimated Additional Land Disturbance for Transmission Line Subalternative Route E 2-90
Table 2-20 Estimated Additional Land Disturbance for the Golf Course Telecommunication Alternative 2-91
Table 2-21 Estimated Additional Land Disturbance for the Mountain Pass Telecommunication Alternative 2-91
Table 2-22 Summary of Land Disturbances and Comparison between Alternatives 2-92
Table 2-23 Construction Workforce Required for the Proposed Project 2-93
Table 2-24 Applicant Proposed Measures 2-99
Table 3.2-1 Conformance with VRM or VRI Class 3.2-54
Table 3.3-1 Summary of National, California, and Clark County Ambient Air Quality Standards 3.3-2
Table 3.3-2 Attainment Status within the Proposed Project Area 3.3-4
Table 3.3-3 MDAQMD Significant Emission Thresholds 3.3-9
Table 3.3-4 Total Project Construction Emissions 3.3-12
Table 3.3-5 Comparison of Annual Project Emissions in San Bernardino County, California, to MDAQMD Significance Thresholds 3.3-13
Table 3.3-6 Daily Project Construction Emissions 3.3-13
Table 3.3-7 Summary of GHG Emissions from Construction and Operation 3.3-15
Table 3.3-8 Laws, Regulations, and Standards Applicable to the ISEGS Project 3.3-21
Table 3.3-9 Operation Emission Impacts for Mitigated Ivanpah 3 ISEGS Project 3.3-25
Table 3.4-1 Additional Biological Surveys to be Completed 3.4-4
Table 3.4-2 Acreage of Project-Related Disturbance for Vegetation Communities within the EITP 3.4-26
Table 3.4-3 Noxious and Invasive Weed Species Documented in the EITP 3.4-28

Table 3.4-4 Summary of the Potential USACE Jurisdiction by Watershed within the EITP 3.4-29
Table 3.4-5 Special-Status Species of Wildlife and Plants with Potential to Occur in the California Segment of the Proposed Project Area 3.4-31
Table 3.4-6 Special-Status Species of Wildlife and Plants With Potential to Occur in the Nevada Segment of the Proposed Project Area 3.4-35
Table 3.4-7 Summary of Cactus and Yucca Species observed the Nevada Portion of the Proposed EITP[1,2,3] 3.4-45
Table 3.4-8 Desert Tortoise Critical Habitat Crossed by EITP Components 3.4-49
Table 3.4-9 Special-Status Species Known or Potentially Occurring in the ISEGS Project Area and Vicinity 3.4-112
Table 3.5-1 EITP Cultural Resources NRHP Eligibility and Impacts 3.5-17
Table 3.6-1 Summary of Surficial and Bedrock Geologic Units 3.6-5
Table 3.6-2 Geologic and Surficial Units Associated with the Proposed Project and Alternatives 3.6-7
Table 3.6-3 Summary of Active and Potentially Active Faults within 100-mile Radius of Proposed Project Area 3.6-8
Table 3.6-4 Summary of the Significant Characteristics of Major Soil Associations 3.6-12
Table 3.6-5 Approximate Estimated Range of Peak Ground Acceleration 3.6-14
Table 3.6-6 Paleontological Sensitivity of the Lithologic Units Underlying Portions of the Proposed Project Area in San Bernardino County, California, and Clark County, Nevada 3.6-20
Table 3.7-1 Hazardous Waste Facilities in California and Nevada 3.7-2
Table 3.7-2 Permitted Facilities (UST and Disposal) in California and Nevada 3.7-4
Table 3.7-3 Typical Electric Field Values for Appliances, at 12 Inches Distance 3.7-11
Table 3.7-4 Magnetic Fields from Household Appliances 3.7-11
Table 3.7-5 EMF Regulated Limits (by State) 3.7-14
Table 3.7-6 Pipeline Crossings 3.7-17
Table 3.8-1 Mapped Intermittent Stream Crossings along the Proposed Project Components 3.8-1
Table 3.8-2 Flood Class Ratings Along the Proposed Route and Alternatives 3.8-11
Table 3.8-3 Water Supply Wells and Springs/Seeps within 1 Mile of the Proposed Project and Alternatives 3.8-15
Table 3.8-4 Laws, Regulations, and Standards Applicable to the ISEGS Project 3.8-36
Table 3.8-5 Estimated Water Volumes Required for Construction and Operation of ISEGS 3.8-39
Table 3.9-1 Proposed Project and Alternatives by Land Use Type and Jurisdiction 3.9-1
Table 3.9-2 Proposed Route Deviations from the Existing ROW 3.9-5
Table 3.9-3 California Allotments Crossed by the Project 3.9-5
Table 3.9-4 Nevada Allotments Crossed by the Project 3.9-6
Table 3.9-5 Designated Areas Adjacent to the Project 3.9-6
Table 3.10-1 Typical Sound Levels Measured in the Environment and Industry 3.10-1
Table 3.10-2 November 20 and 21, 2008, Noise Survey Results Summary (dBA) 3.10-3
Table 3.10-3 Federal Guidelines and Regulations for Exterior Noise (dBA) 3.10-7
Table 3.10-4 Local Plans, Laws, Ordinances, Regulations, and Standards During Construction by Jurisdiction 3.10-9
Table 3.10-5 Local Plans, Laws, Ordinances, Regulations, and Standards During Operation by Jurisdiction 3.10-9
Table 3.10-6 Construction Equipment Noise Levels versus Distance 3.10-11
Table 3.10-7 Corona Noise Modeling Results Summary (dBA) 3.10-12
Table 3.12-1 Recreation Opportunity Within 0.5 miles of the EITP 3.12-2
Table 3.13-1 Regional Population and Density 3.13-1
Table 3.13-2 Regional Population Demographics 2006–2008 ..... 3.13-2
Table 3.13-3 Projected Population Trends, Clark County Region 2000–2030 ..... 3.13-3
Table 3.13-4a Clark County Housing, 2000 ..... 3.13-3

Table 3.13-4b Recent Trends in Median Single Family Home Prices in the Greater Las Vegas Metropolitan Area 3.13-4
Table 3.13-5 Clark County Employment Characteristics in 2008 ..... 3.13-4
Table 3.13-6 San Bernardino County Projected Population Trends, 2000–2030 ..... 3.13-5
Table 3.13-7 San Bernardino County Housing, 2000 and 2008 ..... 3.13-5
Table 3.13-8 San Bernardino Employment Characteristics in 2008 ..... 3.13-6
Table 3.13-9 Racial Composition of Census Tracts Along the Proposed Project Route (2000) 3.13-8
Table 3.14-1 Transportation Intersections Crossing the Proposed Route 3.14-2
Table 3.14-2a Traffic Volumes for Major Transportation Routes in Nevada in 2008 ..... 3.14-3
Table 3.14-2b Traffic Volumes for Major Transportation Routes in California in 2008 ..... 3.14-3
Table 3.14-3 Level of Service Definitions 3.14-3
Table 3.14-4 LOS D or Below for Proposed Project Transportation Network 3.14-4
Table 3-14.5 Proposed Construction Yard Locations 3.14-4
Table 3.14-6 Proposed Guard Structure Locations 3.14-4
Table 3.14-7 ISEGS Intersection LOS Analysis with Project Construction Traffic 3.14-13
Table 4-1 Comparison of Alternatives 4-9
Table 5-1 List of Projects Considered Within or Near the Ivanpah Valley in California 5-2
Table 5-2 List of Projects Considered Within or Near the Ivanpah and Eldorado Valleys in Nevada 5-6
Table 5-3 Estimated Construction Periods and Workforce for Some Large Foreseeable Projects in the Cumulative Area 5-13
Table 5-4 EITP Project Components and Cumulative Projects Visible from KOPs 5-24
Table 5-5 Concurrent Construction of the EITP and the Cumulative Projects and Potentially Affected KOPs 5-34
Table 5-6 Estimated Daily Construction Emissions of Criteria Pollutants for the Proposed Project and Other Foreseeable Projects 5-43
Table 5-7 Impacts on Desert Tortoise Habitat from the EITP and Other Proposed Projects 5-53
Table 5-8 Impacts on Desert Tortoise Habitat from the EITP/ISEGS and Other Proposed Projects 5-57
Table 5-9 Permanent Acreage and AUM Loss to the Clark Mountain Grazing Allotment 5-86
Table 5-10 Existing and Foreseeable Projects within 2.5 miles of the Noise Receptors 5-89
Table 6-1 Estimated Land Disturbance by Alternative 6-5
Table 7.1 Public Scoping Meetings 7-2
Table 7.2 Public Meetings 7-4
Table 7.2 Organizations and Persons Consulted 7-6
Table 7.3 Lead Agency Project Team 7-7
Table 7.4 EIR/EIS Preparers and Reviewers 7-8
Table 9-1 Required Plans, Programs, Studies, Surveys, Reports, and Records 9-3
Table 9-2 Mitigation Monitoring Plan 9-6

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Figures

Figure 1-1 Proposed Project and Alternatives 1-3
Figure 1-2 Existing Utility Corridors 1-14
Figure 2-2 Electric Transmission System 2-2
Figure 2-1 Proposed Project Overview Map 2-3
Figure 2-3 Proposed Project 2-7
Figure 2-3a Proposed Project – Major Utility Transmission Line Crossings 2-13
Figure 2-3b Proposed Project – 230-kV Transmission Line Routing Description 2-23
Figure 2-4 Double-Circuit 230-kV Lattice Steel Tower 2-25
Figure 2-5 Single-Circuit 230-kV H-Frame Structure 2-25
Figure 2-6 Proposed 115-kV Subtransmission Line Location 2-29
Figure 2-7 Single-Circuit 115-kV Tubular Steel Pole 2-31
Figure 2-8 Single-Circuit 115-kV Light Weight Steel H-Frame 2-31
Figure 2-9 Ivanpah Substation Layout 2-33
Figure 2-10 Transmission Line Route Alternatives 2-51
Figure 2-11 Transmission Line Route Alternatives A and B 2-53
Figure 2-12 Transmission Line Route Alternatives C, D, and E 2-57
Figure 2-13 Golf Course Telecommunication Alternative 2-59
Figure 2-14 Mountain Pass Telecommunication Alternative 2-61
Figure 2-15 EITP High-Level Project Schedule 2-94
Figure 3.2-1 Photo Locations and VRM Classifications 3.2-3
Figure 3.2-2 Character Photo 1 ..... 3.2-5
Figure 3.2-3 Character Photo 2 ..... 3.2-7
Figure 3.2-4 Character Photo 3 ..... 3.2-11
Figure 3.2-5 Character Photo 4 ..... 3.2-13
Figure 3.2-6 Character Photo 5 ..... 3.2-15
Figure 3.2-7 Character Photo 6 ..... 3.2-17
Figure 3.2-8 KOP 1 ..... 3.2-21
Figure 3.4-1a Vegetation 3.4-7
Figure 3.4-1b Vegetation 3.4-9
Figure 3.4-1c Vegetation 3.4-11
Figure 3.4-1d Vegetation 3.4-13
Figure 3.4-1e Vegetation 3.4-15
Figure 3.4-1f Vegetation 3.4-17
Figure 3.4-1g Vegetation 3.4-19
Figure 3.4-1h Vegetation 3.4-21
Figure 3.4-1i Vegetation 3.4-23
Figure 3.4-2 Desert Tortoise Densities within the EITP Area (BLM Data) 3.4-46
Figure 3.4-3 Desert Bighorn Sheep Management Areas 3.4-54
Figure 3.4-4 Special Management Areas within the EITP 3.4-63
Figure 3.6-1 Regional and Project Area Geologic Map 3.6-3
Figure 3.6-2 Locally Active and Potentially Active Faults 3.6-9
Figure 3.6-3 Mines and Mining Claim Activity 3.6-17
Figure 3.6-4 Areas of High Paleontological Sensitivity 3.6-21

Figure 3.8-1 Hydrology and Physiography Around the Proposed Project....3.8-3
Figure 3.8-2 Hydrological Features and Flood Zones Around the Proposed Project....3.8-7
Figure 3.8-3 Flood Hazard Mapping....3.8-9
Figure 3.8-4 Groundwater Basins, Springs, and Wells Around the Proposed Project....3.8-13
Figure 3.9-1 Designated Areas in the EITP Area....3.9-3
Figure 3.9-2 Grazing Allotments in the Project Area....3.9-7
Figure 3.9-3 Designated BLM ROW Corridors Boulder City Conservation Easement....3.9-11
Figure 3.10-1 Noise Monitoring Locations....3.10-5
Figure 3.10-2 FRA and FTA Allowable Increase in Cumulative Noise Level....3.10-8
Figure 5-1 Cumulative Projects....5-10
Figure 5-2 Visibility Analysis for the Eldorado-Ivanpah Transmission Line and the Cumulative Projects....5-26
Figure 5-3 Visibility Analysis for the Ivanpah Substation and the Cumulative Projects....5-28
Figure 5-4 Visibility Analysis for the Eldorado Substation and the Cumulative Projects....5-30
Figure 5-5 Cumulative Biological Impact Analysis: Desert Tortoise....5-45
Figure 5-6 Cumulative Projects near Primm, Nevada and the Primm Valley Golf Course....5-69

Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
AAQS	ambient air quality standards
AB	Assembly Bill
AC	Alternating Current
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACSR	Aluminum Conductor Steel Reinforced
AEP	Association of Environmental Professionals
ANCA	Airport Noise Compatibility Area
APM	Applicant Proposed Measure
AQCMM	Air Quality Construction Mitigation Manager
ARPA	Archaeological Resources Protection Act
ASTM	American Society for Testing Materials
ATC	Authority to Construct
BCC	Birds of Conservation Concern
BCCE	Boulder City Conservation Easement
BCI	Bat Conservation International
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BRMIMP	Biological Resources Mitigation Implementation and Monitoring Plan
BVUSD	Baker Valley Unified School District
C	Celsius
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
cal BP	calibrated years before the present
Cal/EMA	California Emergency Management Agency
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California State Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCCP	Clark County Comprehensive Plan
CC-DAQEM	Clark County Department of Air Quality and Environmental Management
CCDOA	Clark County Department of Aviation
CCR	California Code of Regulations
CCSD	Clark County School District
CDCA	California Desert Conservation Area
CDE	Department of Education, California
CDF	California Department of Finance
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

CERTS/EPG	Consortium for Electric Reliability Technology Solutions/Electric Power Group
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	Methane
CIPC	California Invasive Plant Council
CIWMB	California Integrated Waste Management Board
cm	Centimeter
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
COC	Condition of Certification
CPM	Compliance Project Manager
CPUC	California Public Utilities Commission
CREZ	California Renewable Energy Zone
CRHR	California Register of Historical Resources
CRS	Cultural Resources Specialist
CSC	California species of special concern
Cumulative dBA	Allowable Increase in Cumulative Noise Level
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dBA	A-weighted decibel
DEHS	Department of Environmental Health and Safety, San Bernardino County
DEIR	Draft Environmental Report
DESCP	Drainage, Erosion, and Sedimentation Control Plan
DHS	Department of Health Services, California
dm	Decimeters
DNL	Daytime-Nighttime Noise Level
DOC	U.S. Department of Commerce
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control, California
DWMA	Desert Wildlife Management Area
EAP	Energy Action Plan
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EITP	Eldorado–Ivanpah Transmission Project
ELF	Extremely low frequency
EMF	electromagnetic field
EO	element occurrence
EPAct	Energy Policy Act
EPRI	Electric Power Research Institute
ESA	Endangered Species Act
F	Fahrenheit
FAA	Federal Aviation Administration
FCR	Field Contact Representative
FEMA	Federal Emergency Management Agency

FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act
FRP	Facility Response Plan
FSA/DEIS	Final Staff Assessment / Draft Environmental Impact Statement
FTA	Federal Transit Administration
g	acceleration of gravity
GHG	greenhouse gas
GO	General Order
GWP	global warming potential
H_2S	hydrogen sulfide
HAER	Historic American Engineering Record
HAPs	hazardous air pollutants
HAZMAT	hazardous materials
HCP	Habitat Conservation Plan
HMBP	Hazardous Materials Business Plan
hp	horsepower
HSC	Health and Safety Code
HSWA	Hazardous and Solid Waste Act
HWCL	Hazardous Waste Control Law, California
HWMP	Hazardous Waste Management Plan
Hz	Hertz
I-15	Interstate 15
IARC	International Agency for Research on Cancer
IBC	International Building Code
ICC	International Code Council
IEPR	Integrated Energy Policy Report
IMA	Intensively Managed Area
IMACS	Intermountain Archaeological Computer System
IPCC	Intergovernmental Panel on Climate Change
ISEGS	Ivanpah Solar Electric Generating System
kcmil	kilo circular mils
km	Kilometer
KOP	key observation point
kV	kilovolt
kV/m	kilovolts per meter
kW	kilowatt
LADWP	Los Angeles Department of Water and Power
L_{dn}	Daytime-Nighttime Noise Level
L_{eq}	equivalent sound pressure level
LGIP	Large Generator Interconnection Procedures
LIMA	Less Intensively Managed Area
LORS	Laws, Ordinance, Regulations, and Standards
LOS	Level of Service
LST	lattice steel tower
LVCVA	Las Vegas Convention and Visitors Authority
$\mu g/m^3$	micrograms per cubic meter
m	meter
MBTA	Migratory Bird Treaty Act
MDAQMD	Mojave Desert Air Quality Management District

MEER	mechanical and electrical equipment room
mG	milliGauss
mgd	million gallons per day
MM	mitigation measure
MMP	mitigation and monitoring program
MMT	million metric tons
$MMTCO_2e$	million metric tons of CO_2 equivalents
MNP	Mojave National Preserve
MP	milepost
MRDS	Mineral Resource Data System
MSHCP	Multiple Species Habitat Conservation Plan
MUMA	Multiple Use Managed Area
MVA	megavolt ampere
MW	megawatt
mybp	million years before present
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAHC	Native American Heritage Commission
NAWS	Naval Air Weapons Station
NCCP	Natural Communities Conservation Plan
NCDC	National Climatic Data Center
NCP	National Contingency Plan
NDEP	Nevada Department of Environmental Protection
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEMO	Northern and Eastern Mojave
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NFIP	National Flood Insurance Program
NGS	National Geographic Society
NHPA	National Historic Preservation Act
NHPC	National Historic Preservation Council
NIEHS	National Institute of Environmental Health Sciences
NNHP	Nevada Natural Heritage Program
NNPS	Nevada Native Plant Society
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NSPS	New Source Performance Standards
OES	Governor's Office of Emergency Services
OHV	off-highway vehicle
OPGW	optical ground wire
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration

PCB	polychlorinated biphenyl
PE	professional engineer
PEA	Proponent's Environmental Assessment
PFYC	Potential Fossil Yield Classification
PG	professional geologist
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
PPA	Purchase Power Agreement
ppm	parts per million
PRC	Public Resources Code
PRMMP	Paleontological Resource Management and Monitoring Plan
PRR	Paleontological Resources Report
PRS	Paleontological Resource Specialist
PSD	Prevention of Significant Deterioration
PTO	Permit to Operate
PU	Public Utilities
PUCN	Public Utilities Commission of Nevada
RCRA	Resource Conservation and Recovery Act
RCS	Remote Control Switch
RETI	Renewable Energy Transmission Initiative
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
RPS	Renewables Portfolio Standard
RWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SBCFD	San Bernardino County Fire Department
SBCM	San Bernardino County Museum
SCADA	supervisory control and data acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SEL	sound exposure level
SF_6	sulfur hexafluoride
SFS	Stateline Fault System
SIP	State Implementation Plan
SNSA	Southern Nevada Supplemental Airport
SO_2	sulfur dioxide
SPCCP	Spill Prevention, Countermeasure, and Control Plan
SPLA&SL	San Pedro, Los Angeles, and Salt Lake Railroad
SPS	Special Protection System
SR	State Route
SRMA	Special Recreation Management Area
Staff	Bureau of Land Management and California Energy Commission Staff
STG	steam turbine-generator
SVP	Society of Vertebrate Paleontology

SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board, California
TAC	toxic air contaminant
TSD	treatment, storage, and disposal
TSP	tubular steel pole
U.S. EPA	U.S. Environmental Protection Agency
UBC	Uniform Building Code
UEPA	Utility Environmental Protection Act
UFT	underground fuel tank
UMA	Unmanaged Area
UPRR	Union Pacific Railroad
URTD	upper respiratory tract disease
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VdB	vibration velocity level in decibels
VOC	volatile organic compound
VRI	Visual Resource Inventory
VRM	Visual Resource Management
VRP	visibility-reducing particle
WBWG	Western Bat Working Group
WEAP	Worker Environmental Awareness Program
WECC	Western Electricity Coordinating Council
WECC PEIS	West-wide Energy Corridor Programmatic Environmental Impact Statement
WHBA	Wild Free-Roaming Horses and Burros Act
WHO	World Health Organization
WQMP	Water Quality Management Plan

3.7 Hazards, Health, and Safety

This section contains a description of the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to hazards and health and safety issues that may currently exist in the project area. Seismic conditions are addressed in Section 3.6, "Geology, Soils, Minerals, and Paleontology"; flooding is addressed in Section 3.8, "Hydrology and Water Quality"; emergency services and waste management are discussed in Section 3.11, "Public Services and Utilities"; and traffic is addressed in Section 3.14, "Traffic and Transportation."

3.7.1 Environmental Setting

The EITP traverses land used for various purposes including open-space recreation and preserve, residential housing, and commercial businesses. Hazardous material sites may be encountered in the area during construction and operation due to the fuel facilities, underground gas storage tanks, and pipelines in the project vicinity. Existing and past land use activities are potential indicators of hazardous material storage and use. Past and current land uses that could have resulted in unknown contamination include (1) rural residences and farms that could have old or inactive underground fuel tanks (USTs), (2) agricultural properties that could have pesticide-polluted runoff from farming operations, and (3) commercial and industrial sites (historical and current) that could have soil or groundwater contamination from unreported hazardous substance spills. The primary reason to define potentially hazardous sites is to protect the health and safety of EITP construction and operations personnel and to minimize public exposure to hazardous materials during construction and waste handling. If encountered, contaminated soil may qualify as hazardous waste, thus requiring handling and disposal according to local, state, and federal regulations.

The following are summary definitions of hazardous materials and hazardous waste:

- **Hazard:** Any naturally occurring or human-made physical condition in the surrounding environment that would pose a public safety risk.
- **Hazardous Material:** Hazardous materials can be in the form of explosives, flammable and combustible substances, poisons, radioactive materials, pesticides, and petroleum products. These substances are most often released as a result of motor vehicle or equipment accidents or because of chemical accidents during industrial use. These substances have the potential to leach into soils, surface water, and groundwater due to spills if not properly contained (Federal Emergency Management Agency [FEMA] n.d.).
- **Hazardous Waste:** A waste may be considered hazardous if it exhibits certain hazardous properties ("characteristics") or if it is included on a specific list of wastes the U.S. Environmental Protection Agency (~~U.S.~~ EPA) has determined are hazardous ("listing" a waste as hazardous). U.S. EPA's regulations in the Code of Federal Regulations (CFR) define four hazardous waste characteristic properties: ignitability, corrosivity, reactivity, and toxicity (40 CFR 261.21-261.24; U.S. EPA 2010a). Additionally, in California, a waste is considered a hazardous waste if it is listed in Title 22, California Code of Regulations (CCR) Section 66261.126 Appendix 12 (b) in the List of California Hazardous Waste Codes.

Exposure to hazardous materials or wastes can occur during normal use, handling, storage, transportation, and disposal. Exposure may also occur due to hazardous compounds existing in the environment such as fuels in underground storage tanks (USTs), pipelines, or areas where chemicals have leaked into the soil or groundwater.

3.7.1.1 Hazardous Waste Sites and Permitted Facilities in California and Nevada

As required by the CEQA, the Cortese list data sources were reviewed to determine sites potentially containing hazardous material or waste near the project right-of-way (ROW) within California. The Cortese list includes hazardous waste facilities subject to corrective action, and sites designated as hazardous waste property, hazardous

waste disposal areas, contaminated sites, and abandoned sites. Review of readily available online environmental databases, including the California State Water Resources Control Board (SWRCB) Geotracker (SWRCB 2010) and the California Department of Toxic Substances Control (DTSC) EnviroStor (DTSC 2009) databases, indicates there are two hazardous facilities sites in California and Nevada (Table 3.7-1).

Table 3.7-1 Hazardous Waste Facilities in California and Nevada

Site Name	Address	City, County, State	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
Molycorp – Mountain Pass	PO Box 124	Mountain Pass, San Bernardino County, California	Cleanup Program Site	Open Case (Site Assessment) The Molycorp Mine, a lanthanide mining and milling operation, discharged contaminated wastewater to the Ivanpah Dry Lake between 1980 and 1998. An agreement with the RWQCB requires cleanup and abatement of a groundwater plume that developed below the discharge points.	<6.5 miles (actual distance is undetermined)	Near the Mountain Pass Telecom. Alternative
Biogen Power Plant	Off I-15, near Ivanpah	Town of Primm, Clark County, Nevada	Land Disposal Site	Closed Case	The landfill is closed and is located underneath the Primm Golf Course (greater 0.4 miles from the project)	Near the Primm Golf Course Telecom. Alternative

Source: ~~https://Geotracker.Waterboards.Ca.Gov~~SWRCB 2008
Key:
RWQCB = Regional Water Quality Control Board

Molycorp Mine

The Molycorp Mine was originally opened in the early 1950s near the town of Mountain Pass, California, and is an active lanthanide mining and milling operation. According to the Toxic Release Inventory Database, the Molycorp Mine emits air quality contaminates, but there are no surface water discharges and no underground injection. Lead compounds are shipped off-site for disposal (EPA 2010a). The Molycorp Mine has a history of contamination. Under a 1994 settlement, Molycorp agreed to close the drum yard and the concrete casting and staging areas at the Mountain Pass Facility in order to remove all drummed wastes and close all lead waste impacted areas. By the end of 2003, DTSC Geology, Permitting, and Corrective Action Branch accepted the closure certification of these units and released Molycorp from closure financial responsibility (DTSC 2010). -According to Envirostor, the Molycorp Mountain Pass Facility currently has a non-operating hazardous waste facility (DTSC 2010). -There is also groundwater contamination associated with the on-site evaporation pond (Cass 2010).

The Mountain Pass Telecommunication Alternative follows the route of the Molycorp wastewater pipeline down the mountain, and both the Mountain Pass and Golf Course Telecommunication Alternatives follow its path along a portion of Nipton Road. The Molycorp Pipeline also has a history of contamination. -Between 1984 and 1993, Molycorp reported over 40 spills from the pipeline, totaling 727,000 gallons. In 1996, there were at least 11 spills from pipeline ruptures, totaling in excess of 350,000 gallons. Some of the waste contained heavy metals and low levels of radioactivity, up to 100 times acceptable (background) levels. In 1997, the Lahontan Regional Water Quality Control

Board (RWQCB) issued Cleanup and Abatement Order 6-97-66, and Molycorp completed the cleanup in 1998. -More than half of the wastes were radioactive. In 1998, the Lahontan RWQCB issued orders requiring Molycorp to cease disposing of and clean up radioactive and hazardous waste in ponds on the playa and at the mill site and subsequently identified additional areas of the pipeline that required remediation and developed a plan for pipeline removal. Following a civil suit from county prosecutors for violating state drinking water safety laws, Molycorp temporarily suspended operations at the mine and mill in September 1998 until environmental reviews were complete and a solution to its wastewater issues was reached (EPA 2010b). -Much of the contamination along the pipeline has been removed (Cass 2010).

Contamination has also occurred at the evaporation pond sites. The wastewater pipeline discharged to two different sets evaporation ponds. From 1980 to 1987, wastewater was discharged to the Old Ivanpah Evaporation Ponds located approximately 10 miles east of the mine along Nipton Road. Operations at the Old Ivanpah Evaporation Ponds were discontinued when it was discovered that the underlying groundwater was contaminated with total dissolved solids, nitrate, and strontium that appeared to be related to the ponds. In 1987, wastewater discharge was moved to the New Ivanpah Evaporation Ponds, located approximately three miles north of the Old Ivanpah Evaporation Ponds near the center of the Ivanpah Playa. The New Ivanpah Evaporation Ponds location was selected based on naturally poor groundwater quality (high saline and total dissolved solids) that exists beneath the dry lakebed. The wastewater discharged to the New Ivanpah Evaporation Ponds contained elevated total dissolved solids, primarily chloride and sodium with lower concentrations of strontium, nitrate, barium, lead, and radionuclides. The media of concern at the New Ivanpah Evaporation Ponds is surface soils and groundwater. The New Ivanpah Evaporation Ponds has not been formally closed. Groundwater monitoring for total dissolved solids, nitrates/nitrites, strontium, and lead is on-going around the New Ivanpah Evaporation Ponds (Arcadis 2009).

Other Potential Hazardous Materials Sites

The Golf Course Telecommunication Alternative could cross two sites that contain potentially hazardous materials. The Biogen Power Plant, a closed land disposal site, is buried underneath the Primm Golf Course in Primm, Nevada, near milepost (MP) 6 of the telecommunication line. ~~In addition, there are several non-contaminated permitted facilities including gas stations, underground storage tanks (USTs) and land disposal sites near the project ROW and the proposed alternatives. The USTs and land disposal sites are located in both California and Nevada (see Table 3.7-2).~~

~~In addition, an underground storage tank~~ In addition, a UST may be located at the southeast quadrant of the Interstate 15 (I-15)/Yates Well Road interchange in Nipton, California, near MP 4 of the Golf Course Telecommunication Alternative; a house trailer is currently located at the site (CEC and BLM 2009). Although this site was not listed as a contaminated site and additional information is not known, the site will be reviewed as part of the Phase 1 Environmental Site Assessment for the project.

There are also non-contaminated permitted facilities near the project ROW and the proposed alternatives in both California and Nevada, including gas stations, USTs, and land disposal sites (see Table 3.7-2). Additional potential sources of contamination to soil and water could pertain to the transport, use, storage, and disposal of fuels and chemicals that would be used for construction and operation activities. The applicant, Southern California Edison (SCE), has committed to conducting Phase I Environmental Site Assessment studies in areas of planned ground disturbance prior to project construction to identify potential contamination in areas to be graded or excavated as part of the proposed project.

Table 3.7-2 Permitted Facilities (UST and Disposal) in California and Nevada

Site Name	Address	City	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
San Bernardino County, California [a, b, d, e, f, g, h]						
Atc-Mountain Pass #89344	Bailey Road 16n 13e Sec11	Mountain Pass	Permitted ~~UST~~AST	Active Permit	5.3 miles west-southwest of Ivanpah Substation terminus	Approx. 0.5 miles west of Mountain Pass Telecom. Alternative
North Tailing Pond P-16 (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Community & Co Landfills (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Mountain Pass Mine & Mill Ops (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
New Ivanpah Dry Lake Evap. Pond (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Onsite Evap. Ponds (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Old Evap Pond Closure (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
Mountain Pass P-1 Closure (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
East Tailings Pond (at Molycorp facility)	67750 Bailey Road	Mountain Pass	Land Disposal Site	Open	6.5 miles south of MP 1	0.35 miles north of the Mountain Pass Telecom. Alternative
St-Cal Trans/Mtn Pass	94200 Clark Mountain Road	Nipton	Permitted UST	Active Permit		In ROW of the Mountain Pass Telecom. Alternative
Hidden Hills Lake Test Site[2]	Near Ivanpah Dry Lake	Ivanpah	Military Facility		0.6 miles from MP 31	MP 5 from Alt C.

Table 3.7-2 Permitted Facilities (UST and Disposal) in California and Nevada

Site Name	Address	City	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
Clark County, Nevada [c, d, e, f, g, h]						
Primm Valley Texaco	31960 Las Vegas Blvd. South	Town of Primm	Permitted UST	Active Permit	0.25 miles northwest of MP 28	0.5 miles southwest of Alternative C. 0.9 miles west of Alternative D and Subalternative E
Whiskey Pete's Chevron Truck Stop	115 W. Primm Blvd.	Town of Primm	UST for Diesel and Gasoline		0.5 miles east of MP 28	0.8 miles from Alternative E and Subalternative D
Primm Valley Texaco	31960 Las Vegas Blvd. South at Primadonna Hotel & Casino	Town of Primm	UST for Diesel and Gasoline		0.3 miles east of MP 28	0.8 miles from Alternative D and Subalternative E
Primm Valley Travel Center	31900 South Las Vegas Blvd.	Town of Jean	Permitted UST	Active Permit	0.25 miles northwest of MP 28	0.5 miles southwest of Alternative C. 0.9 miles west of Alternative D and Subalternative E
Gold Strike Auto/Truck Plaza	Goodsprings Rd, Hwy 53	Town of Jean	UST for Diesel and Gasoline		6.0 miles northwest of MP 14	12 miles from Alternative D and Subalternative E
Jean Fuel West Shell	2 Goodsprings Rd	Town of Jean	UST for Gasoline		6.0 miles northwest MP 14	12 miles from Alternative D and Subalternative E
South Jean Quarry	Township 26 S Range 60 E Section 06	Town of Jean	Permitted UST Diesel*	Active Permit	Approx. 0.5 miles northwest of MP 19 and 20	Approx. 7.2 miles northeast of Alternatives C, D, and E.

~~Sources:~~
~~[a] https://Geotracker.Waterboards.Ca.Gov~~
~~[b] http://www.envirostor.dtsc.ca.gov/public~~
~~[c] Nevada Division of Environmental Protection 2009a~~
~~* Storage tanks are not federally regulated USTs. Examples of non-regulated tanks are ASTs, farm tanks, and residential tanks.~~
~~Key:~~
~~MP = Milepost~~
~~UST = Underground storage tank~~

Table 3.7-2 Permitted Facilities (UST and Disposal) in California and Nevada

Site Name	Address	City	Site/Facility Type	Cleanup Status	Distance from Proposed Route	Distance from Nearest Alternative
South Nevada Correctional Center	Prison Road	Town of Jean	Prison	Unknown/Inactive	Approx. 5.0 miles northwest of MP 18	N/A
Crescent Peak Road Complaint	Crescent Peak Road	Crescent	Unspecified	Unknown/Inactive	N/A	0.3 miles south of Golf Course and Mountain Pass Alternatives
Nevada Solar One	One 602 Eldorado Valley Drive	Boulder City	Small Quantity Generator	Unknown/Active	Approx. 1.7 miles east of MP 0	Approx. 1.6 miles east of Alternatives A and B, and Telecom Alternatives

Sources:
[a] SWRCB 2009
[b] DTSC 2009
[c] Nevada Division of Environmental Protection 2009a
[d] RCRA: USEPA 2010c, 2010d, 2010e
[e] CERCLIS: No additional results
[f] SWIS: CalRecycle 2010
[g] USACE FUDS: No additional results
[h] NPL: No additional results
* Storage tanks are not federally regulated USTs. Examples of non-regulated tanks are ASTs, farm tanks, and residential tanks.
Key:
AST = Aboveground storage tank
MP = Milepost
UST = Underground storage tank

3.7.1.2 Airports

Aboveground transmission lines may pose a threat to aviation safety if they are near airports or flight paths. Currently, the Jean Sport Aviation Center is the only operating airport in the project area. Additionally, the Clark County Department of Aviation (CCDOA) is proposing to build the Southern Nevada Supplemental Airport (SNSA) and the Southern Nevada Regional Heliport near the proposed project.

Jean Sport Aviation Center

The Jean Sport Aviation Center is 20 miles south of Las Vegas off of I-15. This public airport, also known as the Jean Airport, is owned and managed by the Clark County Department of Aviation (CCDOA 2006). It is mainly used for sports aviation such as gliding and skydiving. The airport is approximately 5 miles (26,400 feet) north of the proposed project, near MP 20.

Proposed Southern Nevada Supplemental Airport

The proposed SNSA airport, also known as the Ivanpah Valley Airport, would be located south of Jean, Nevada, northwest of the EITP. If approved, the proposed SNSA boundary would be located within 0.5 miles (2,640 feet) north of the MP 26 of the EITP 230-kV transmission line. Additionally, the EITP would cross the Ivanpah Airport Environs Overlay as discussed in Section 3.9, "Land Use." ~~The proposed SNSA is expected to be operational in year 2020, after the scheduled completion of the EITP, which is projected to be operational in 2013. The exact locations of~~

~~SNSA components, such as runways and navigational equipment, are unknown pending project approval, although several alternatives have been proposed (CCDOA 2006). The SNSA is currently undergoing environmental review and an EIS is being prepared jointly by the BLM and the Federal Aviation Administration (FAA). The EIS is projected to be complete by the fourth quarter of 2012 (FAA and BLM n.d.).~~The proposed SNSA project and its EIS process are currently on hold (CCDOA 2010); however, an airport layout plan is on file with the FAA (CCDOA 2009). For more information about the SNSA land transfer, see Section 3.9, "Land Use."

Proposed Southern Nevada Regional Heliport

The Southern Nevada Regional Heliport is proposed to be located east of I-15 on a vacant, unincorporated Clark County parcel, 5 miles south of Saint Rose Parkway. The proposed heliport would be built to accommodate the demand for helicopter tour services in the Las Vegas area (Southern Nevada Regional Heliport n.d.). The proposed Southern Nevada Regional Heliport would be located approximately 8 miles (42,240 feet) north of the EITP, closest to MP 14 of the proposed transmission line.

Private Airports

There are no private airstrips located within the vicinity of the proposed project.

3.7.1.3 Schools

There are no schools within 50 miles of the proposed project.

3.7.1.4 Emergency Evacuation Routes

Emergency evacuation routes in the Desert region of San Bernardino County are as follows: Interstates 15 and 40, US 95 and 395, and State Routes (SRs) 18, 58, 62, 127, 138, 178, and 247 (SB County 2007b). The emergency evacuation routes in the Desert region of Clark County, Nevada, are as follows: I-15, SRs 164, 161, and 604, and US 95 (Clark County). Further discussion of transportation routes may be found in Section 3.14, "Transportation and Traffic."

The existing 115-kV transmission line aerially spans I-15 in the vicinity of MP 29. The proposed transmission line and telecommunications Path 1 would also span I-15 in the vicinity of MP 29. Transmission Alternative Routes C and D and Subalternative E, and the Golf Course Telecommunications Alternative, would span I-15. The Eldorado Substation and Transmission Alternative Routes A and B would be located in remote areas and would not affect routes identified in emergency response or evacuation plans.

3.7.1.5 Emergency Response Plans

San Bernardino County, California

The San Bernardino Hazardous Waste Management Plan (HWMP) was adopted by the County of San Bernardino Board of Supervisors and approved by the California Department of Health Services in February 1990. The HWMP identifies the types and amounts of wastes generated in the county; establishes programs for managing these wastes; identifies an application review process for siting specified hazardous waste facilities; identifies mechanisms for reducing the amount of waste generated in the county; and identifies goals, policies, and actions for achieving effective hazardous waste management (SB County 2009).

The State Secretary for Environmental Protection designates an agency to serve as the Certified Unified Program Agency (CUPA) for each county. The CUPA structure is designed to focus management of certain environmental programs at the local government level, reducing overlapping and sometimes conflicting requirements that arise if different governmental agencies independently manage health and hazards programs. More specifically, the CUPA program consolidates, coordinates, and uniformly and consistently administers permits, inspection activities, and

enforcement activities. CUPAs are charged with providing a comprehensive and balanced environmental management approach to resolve issues using both education and enforcement to minimize risk to human health and the environment and promote fair business practices.

The CUPA for San Bernardino County (except the city of Victorville) is the Hazardous Materials Division of the County Fire Department. The Fire Department manages six hazardous material and hazardous waste programs, which are:

- Hazardous Materials Release Response Plans and Inventory (Business Plan)
- California Accidental Release Program
- Underground Storage Tanks
- Aboveground Petroleum Storage Act/Spill Prevention, Control, and Countermeasure (SPCC)
- Hazardous Waste Generation and Onsite Treatment
- Hazardous Materials Management Plans and Inventory Statements under Uniform Fire Code Article 80

The County Fire Department is also responsible for the continued update of emergency evacuation plans for wildland fire incidents as an extension of the agency's responsibility for Hazard Mitigation Planning in San Bernardino County.

Clark County Hazardous Materials Emergency Response Plan

The Clark County Hazardous Materials Emergency Response Plan (Clark County 2008) establishes guidelines for responding to hazardous material incidents throughout the county. The plan provides emergency response procedures and evacuation plans for dealing with accidental chemical releases and establishes notification procedures for response. The plan also provides information on how to notify the public and on emergency equipment available to the community if an accidental release occurs. A training schedule for local emergency response workers is outlined, and community and facility coordinators are designated. The responsibility for control of hazardous materials lies with the owner; however, if an incident results in loss of control of a hazardous material, local governments must take action to limit the effect on life, property, and the environment.

Clark County Multi-Jurisdictional Hazard Mitigation Plan

The Clark County Multi-Jurisdictional Hazard Mitigation Plan establishes a strategy to implement improvements and programs to reduce community and regional impacts in the event of a natural disaster. The Hazard Mitigation Plan identifies the potential hazards, the extent of the risks posed by the hazards, the vulnerabilities of each jurisdiction to these hazards, and actions that are currently in place or would be initiated to mitigate or reduce the potential impact of the hazards The Clark County Fire Department is the lead agency for hazardous events. The Clark County and Las Vegas Fire Departments are responsible for the continued update of emergency evacuation plans for wildland fire incidents as an extension of the agency's responsibility for Hazard Mitigation Planning in Clark County (Clark County 2005).

3.7.1.6 Electromagnetic Fields

Due to public concern about electromagnetic fields (EMFs), this section defines the phenomenon and presents a summary of research about EMFs to inform both the public and decision-makers. Health effects from exposure to the electrical field component of EMFs from power lines is typically not of concern, since these fields are effectively shielded by materials such as trees and walls. Therefore, most of the following information focuses on exposure to magnetic fields from power lines. Moreover, the CPUC does not consider EMFs, in the context of CEQA, as an environmental impact because there is no agreement among scientists that EMFs create a potential health risk and because CEQA does not define or adopt standards for defining any potential risk from EMFs.

Defining Electric and Magnetic Fields

Electric and magnetic fields are components of electromagnetic fields. Electric fields are produced by stationary electric charges, and magnetic fields are produced by moving electrical charges. Naturally occurring electromagnetic fields produced by weather and the Earth's geomagnetic field are not of concern. Electric and magnetic fields are also caused by human activity such as communications, appliances, and the generation, transmission, and local distribution of electricity. Both types of fields exist near power lines.

The frequency of a power line is determined by the rate at which electric and magnetic fields change their direction each second. For power lines in the United States, the frequency of change is 60 times per second, or 60 Hertz (Hz). In Europe and many other countries, the frequency of electric power is 50 Hz. Radio and communication waves operate at much higher frequencies, 500,000 to 1 billion Hz. The information presented in this document is limited to the EMFs from power lines operating at frequencies of 50 or 60 Hz.

Electric power flows across transmission systems from generating sources to serve electrical loads (demands) within the community. The apparent power (measured in multiples of ~~watts~~volt-amperes) passing through a transmission line is determined by the transmission line's voltage and the current, which is measured in amperes, or amps. The higher the voltage of the transmission line, the lower the amount of current needed to deliver the same amount of power. For example, a 115-kV transmission line with 200 amps of current will transmit approximately 40,000 kilowatts (kW) of power, but a 230-kV transmission line requires only 100 amps of current to deliver the same 40,000 kW.

Electric Fields

Electric fields from power lines are created whenever the lines are energized, with the strength of the field directly dependent on the voltage of the line creating it. Electric field strength is typically described in terms of kilovolts per meter (kV/m). Electric field strength is attenuated (reduced) rapidly as the distance from the source increases. Electric fields are attenuated at many receptors because they are effectively shielded by most objects such as trees, houses, or the human body. Measuring an electric field with instruments is difficult because the devices themselves alter the levels recorded. Determining an individual's exposure to electric fields requires understanding of many variables, including the electric field itself, how effectively the person is grounded, and his or her body surface area within the electric field.

Electric fields in the vicinity of power lines can cause the same phenomenon as the static electricity experienced on a dry winter day, or with clothing just removed from a clothes dryer, and may result in small nuisance electric discharges when a person touches long metal fences, pipelines, or large vehicles. Electric shock may occur if people come into contact with energized wires, which generally occurs accidentally.

Magnetic Fields

Magnetic fields from power lines are created whenever current flows through power lines. The strength of the field is directly dependent on the current in the line. Magnetic field strength is typically measured in milliGauss (mG). Similar to electric fields, magnetic field strength attenuates rapidly with distance from the source. However, unlike electric fields, magnetic fields are not easily shielded by objects or materials.

The nature of a magnetic field can be illustrated by considering a household appliance. When the appliance is energized by being plugged into an outlet but not turned on, no current flows through it. Under such circumstances, an electric field is generated around the cord and appliance, but no magnetic field is present. If the appliance is switched on, the electric field would still be present and a magnetic field would also be created. The electric field strength is directly related to the magnitude of the voltage from the outlet, and the magnetic field strength is directly related to the magnitude of the current flowing in the cord and appliance.

EMFs in the Proposed Project Area

Subtransmission Lines

The project consists of replacing approximately 35 miles of single-circuit 115-kV subtransmission with 35 miles of 230-kV transmission line. With the exception of a short segment of the transmission line that would run adjacent to the city of Primm, Nevada, near the Desert Oasis Apartment Complex, the line is located in undeveloped, rural areas.

In undeveloped and natural areas, measurable EMFs are not present except in the vicinity of existing power line corridors. Public exposure to EMFs from power lines in undeveloped areas is limited, primarily due to the absence of the public; however, periodic and transient uses of these areas for activities such as recreation would result in public exposure to EMFs when people were in the vicinity of existing electric transmission lines.

In developed areas, public exposure to EMFs is more widespread and encompasses a very broad range of field intensities and durations. In the developed areas of the proposed 230-kV route, EMFs are prevalent from the use of electronic appliances or equipment and existing electric distribution lines. In general, distribution lines exist throughout developed portions of the community and are the predominant source of public exposure to power line EMFs except in the immediate vicinity of transmission corridors.

The proposed transmission line and telecommunications system would cross lands in Boulder City and Primm, Nevada, and predominantly undeveloped land managed by the BLM. Most land that would be crossed by the proposed transmission line and telecommunications system is undeveloped, including the land under the jurisdiction of Boulder City.

Substations

At substations, station buswork, substation equipment, and subtransmission and distribution lines all contribute electromagnetic fields to the immediate environment. However, the most significant contributors to the EMFs are the transmission, subtransmission, and distribution lines. Therefore, the transmission line magnetic fields described above are also produced in the immediate area of substations.

The project substation would be located on undeveloped land managed by the BLM. The proposed Ivanpah Substation would be approximately 2 miles from the Primm Valley Golf Course and approximately 6 miles from Primm, Nevada.

Scientific Background and Regulations Applicable to EMFs

EMF Research

The potential health effects of EMFs from power lines have been researched for more than ~~20~~40 years. Earlier studies focused primarily on interactions with the electric fields from power lines. In the late 1970s, magnetic field interactions began to receive additional public attention and research levels have increased. A substantial amount of research investigating both electric and magnetic fields has been conducted over the past several decades; however, much of the body of national and international research on EMFs and public health risks remains contradictory or inconclusive.

Extremely low frequency (ELF) fields are known to interact with tissues by inducing electric fields and currents in these fields. However, the electric currents induced by ELF fields commonly found in our environment are normally much lower than the strongest electric currents naturally occurring in the body such as those that control the beating of the heart.

Research related to EMFs can be grouped into three general categories: cellular level studies, animal and human experiments, and epidemiological studies. These studies have provided mixed results, with some studies showing an apparent relationship between magnetic fields and health effects and other similar studies not showing a relationship.

Since 1979, public interest and concern specifically focused on magnetic fields from power lines has increased. This increase has generally been attributed to publication of the results of a single epidemiological study (Wertheimer and Leeper 1979). This study observed an association between the wiring configuration on electric power lines outside of homes in Denver and the incidence of childhood cancer. Following publication of the Wertheimer and Leeper study, many epidemiological, laboratory, and animal studies of EMFs have been conducted. Research on ambient magnetic fields in homes and buildings in several western states found average magnetic field levels within most rooms to be approximately 1 mG, while in a room with appliances present, the measured values ranged from 9 to 20 mG (Severson et al. 1988, Silva 1988). Immediately adjacent to appliances (within 12 inches), field values are much higher, as illustrated in Tables 3.7-3 and 3.7-4. These tables indicate typical sources and levels of electric and magnetic field exposure the general public experiences from appliances.

Table 3.7-3 Typical Electric Field Values for Appliances, at 12 Inches Distance

Appliance	Electric Field Strength (kV/m)
Electric Blanket	0.25*
Broiler	0.13
Stereo	0.09
Refrigerator	0.06
Iron	0.06
Hand Mixer	0.05
Phonograph	.04
Coffee Pot	.03
* 1–10 kV/m next to blanket wires	

Source: Enertech 1985
Key: kV/m = Kilovolts per meter

Table 3.7-4 Magnetic Fields from Household Appliances

	Magnetic Field (mG)	
Appliance	12" Distant	Maximum
Electric Range	3–30	100–1,200
Electric Oven	2–25	10–50
Garbage Disposal	10–20	850–1,250
Refrigerator	0.3–3	4–15
Clothes Washer	2–20	10–400
Clothes Dryer	1–3	3–80
Coffee Maker	0.8–1	15–250
Toaster	0.6–8	70–150
Crock Pot	0.8–1	15–80
Iron	1–3	90–300
Can Opener	35–250	10,000–20,000
Mixer	6–100	500–7,000
Blender, popper, processor	6–20	250–1,050
Vacuum Cleaner	20–200	2,000–8,000
Portable Heater	1–40	100–1,100
Fan/Blower	0.4–40	20–300
Hair Dryer	1–70	60–20,000
Electric Shaver	1–100	150–15,000
Color TV	9–20	150–500
Florescent Fixture	2–40	140–2,000
Florescent Desk Lamp	6–20	400–3,500
Circular Saw	10–250	2,000–10,000
Electric Drill	25–35	4,000–8,000

Source: Gauger 1985

Methods to Reduce EMF

EMF levels from transmission lines can be reduced in three primary ways: shielding, field cancellation, or increasing the distance from the source. Shielding, which reduces exposure to electric fields but not to magnetic fields, can be actively accomplished by placing trees or other physical barriers along the transmission line ROW. Shielding also results from existing structures the public may use or occupy along the line.

Magnetic fields can be reduced either by cancellation or by increasing distance from the source. Cancellation is achieved in two ways. A transmission line circuit consists of three "phases": three separate wires (conductors) on a transmission tower. The configuration of these three conductors can reduce magnetic fields. First, when the configuration places the three conductors closer together, the interference or cancellation of the fields from each wire is enhanced. This technique has practical limitations because of the potential for short circuits if the wires are placed too close together. There are also worker safety issues to consider if spacing is reduced. Second, in instances where there are two circuits (more than three phase wires), such as in portions of the Project, cancellation can be accomplished by arranging phase wires from the different circuits near each other. In underground lines, the three phases are typically much closer together than in overhead lines because the cables are insulated (coated).

The distance between the source of fields and the public can be increased either by placing the wires higher aboveground, burying underground cables deeper, or increasing the width of the ROW. For transmission lines, these methods can prove effective in reducing fields because the reduction of the field strength drops rapidly with distance.

Scientific Panel Reviews

Numerous panels of expert scientists have convened to review the data relevant to the question of whether exposure to power-frequency EMFs is associated with adverse health effects. These evaluations have been conducted in order to advise governmental agencies or professional standard-setting groups. These panels of scientists first evaluate the available studies individually, not only to determine what specific information they can offer, but also to assess the validity of their experimental design, methods of data collection, analytical rigor, and conclusions relative to the nature and quality of the data presented. Subsequently, the individual studies, with their previously identified strengths and weaknesses, are evaluated collectively in an effort to identify whether there is a consistent pattern or trend in the data that would lead to a determination of possible or probable hazards to human health resulting from exposure to these fields.

These reviews include those prepared by international agencies such as the World Health Organization (WHO) (WHO 1984, 1987, 2001, and ~~2001~~2007), as well as governmental agencies of a number of countries, such as the U.S. EPA, the National Radiological Protection Board of the United Kingdom, the Health Council of the Netherlands, and the French and Danish Ministries of Health. As explained further below, these scientific panels have varied conclusions on the strength of the scientific evidence suggesting that power-frequency EMF exposures pose any health risk.

In May 1999, the National Institute of Environmental Health Sciences (NIEHS) submitted to Congress its report, Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields, containing the following conclusion on EMFs and health effects:

> "Using criteria developed by the International Agency for Research on Cancer (IARC), none of the Working Group considered the evidence strong enough to label ELF-EMF exposure as a known human carcinogen or probable human carcinogen. However, a majority of the members of this Working Group concluded that exposure to power-line frequency ELF-EMF is a possible carcinogen."

In June 2001, a scientific working group of IARC (an agency of WHO) reviewed studies related to the carcinogenicity of EMFs. Using standard IARC classification, magnetic fields were classified as "possibly carcinogenic to humans" based on epidemiological studies. "Possibly carcinogenic to humans" is a classification used to denote an agent for which there is limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals. Other agents identified as "possibly carcinogenic to humans" include gasoline exhaust, styrene, welding fumes, and coffee (WHO 2001).

On behalf of the CPUC, the California Department of Health Services (DHS) completed a comprehensive review of existing studies related to EMFs from power lines and potential health risks. This risk evaluation was undertaken by three DHS staff scientists from 2000 to 2002. Each of these scientists is identified in the review results as an epidemiologist. The results of this review, An Evaluation of the Possible Risks from EMFs from Power Lines, Internal Wiring, Electrical Occupations, and Appliances, were published in June 2002. The conclusions were:

- To one degree or another, all three of the DHS scientists are inclined to believe that EMFs can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's Disease, and miscarriage.
- They strongly believe that EMFs do not increase the risk of birth defects or low birth weight.
- They strongly believe that EMFs are not universal carcinogens, since there are a number of cancer types that are not associated with EMF exposure.
- To one degree or another they are inclined to believe that EMFs do not cause an increased risk of breast cancer, heart disease, Alzheimer's Disease, depression, or symptoms attributed by some to sensitivity to EMFs. However, all three scientists had judgments that were "close to the dividing line between believing and not believing" that EMFs cause some degree of increased risk of suicide.
- For adult leukemia, two of the scientists are "close to the dividing line between believing or not believing" and one was "prone to believe" that EMFs cause some degree of increased risk.

The report indicates that the DHS scientists are more inclined to believe that EMF exposure increases the risk of the above health problems than the majority of the members of scientific committees that have previously convened to evaluate the scientific literature. Addressing why the DHS review's conclusions differ from those of other recent reviews, the report states:

> "The three DHS scientists thought there were reasons why animal and test tube experiments might have failed to pick up a mechanism or a health problem; hence, the absence of much support from such animal and test tube studies did not reduce their confidence much or lead them to strongly distrust epidemiological evidence from statistical studies in human populations. They therefore had more faith in the quality of the epidemiological studies in human populations and hence gave more credence to them." (DHS 2002)

While the results of the DHS report indicate these scientists believe that EMFs can cause some degree of increased risk for certain health problems, the report did not quantify the degree of risk or make any specific recommendations to the CPUC.

In addition to the uncertainty about the level of health risk posed by EMFs, individual studies and scientific panels have not been able to determine or reach consensus on what level of magnetic field exposure might constitute a health risk. In some early epidemiological studies, increased health risks were discussed for daily time-weighted average field levels greater than 2 mG. However, the IARC scientific working group indicated that studies with average magnetic field levels of 3 to 4 mG played a pivotal role in their classification of EMFs as a possible carcinogen.

Policies, Standards, and Regulations

A number of counties, states, and local governments have adopted or considered regulations or policies related to EMF exposure. The reasons for these actions have been varied; in general, however, the actions can be attributed to addressing public reaction to and perception of EMFs, as opposed to responding to the findings of any specific scientific research. Following is a summary of the guidelines and regulatory activity regarding EMFs.

International Guidelines

The International Radiation Protection Association, in cooperation with WHO, has published recommended guidelines (INRC 1998) for electric and magnetic field exposures. For the general public, the limits are 4.2 kV/m for electric fields, and 833 mG for magnetic fields. Neither of these organizations has any governmental authority or recognized jurisdiction to enforce these guidelines. However, because they were developed by a broad base of scientists, these guidelines are considered by utilities and regulators when reviewing EMF levels from electric power lines.

National Guidelines

Although the U.S. EPA has conducted investigations into EMFs related to power lines and health risks, no national standards have been established. There have been a number of studies sponsored by the U.S. EPA, the Electric Power Research Institute (EPRI), and other institutions. Several bills addressing EMFs have been introduced at the congressional level and have provided funding for research; however, no bill has been enacted that would regulate EMF levels.

The 1999 NIEHS report to Congress suggested that the evidence supporting EMF exposure as a health hazard was insufficient to warrant aggressive regulatory actions. The report did suggest passive measures to educate the public and regulators on means aimed at reducing exposures. NIEHS also suggested the power industry continue its practice of siting lines to reduce public exposure to EMFs and explore ways to reduce the creation of magnetic fields around lines.

State Guidelines

Several states have adopted limits for electric field strength within transmission line ROWs. Florida and New York are the only states that currently limit the intensity of magnetic fields from transmission lines. These regulations include limits within the ROW as well as at the edge of the ROW and cover a broad range of values. Table 3.7-5 lists the states regulating EMFs and their respective limits. The magnetic field limits were based on an objective of preventing field levels from increasing beyond levels currently experienced by the public and are not based upon any link between scientific data and health risks (Morgan 1991).

Table 3.7-5 EMF Regulated Limits (by State)

State	Electric Field (kV/M)	Magnetic Field (mG)	Location	Application
Florida (codified)	N/A	N/A	N/A	N/A
500-kV lines	10		In ROW	Single-circuit
	2	200	Edge of ROW	Single-circuit
	2	250	Edge of ROW	Double-circuit
230-kV Lines or less	8	N/A	In ROW	N/A
	2	150	Edge of ROW	230 kV or less
Minnesota	8	N/A	In ROW	>200 kV
Montana (codified)	1 7	N/A	Edge of ROW In ROW	>69 kV Road crossings
New Jersey	3	N/A	Edge of ROW	Guideline for complaints

Table 3.7-5 EMF Regulated Limits (by State)

State	Electric Field (kV/M)	Magnetic Field (mG)	Location	Application
New York	1.6	200	Edge of ROW	>125 kV, >1 mile
	7		In ROW	Public roads
	11	N/A	In ROW	Public roads
	11.8	N/A	In ROW	Other terrain
North Dakota	9	N/A	In ROW	Informal
Oregon (codified)	9	N/A	In ROW	230-kV, 10 miles

Source: Public Utilities Commission of Texas

Elsewhere in the United States, several agencies and municipalities have taken various actions related to EMF policies. These actions have included requirements that EMFs be considered in the siting of new facilities. In a few instances, a concept referred to as "prudent avoidance" has been formally adopted. Prudent avoidance, a concept proposed by Dr. Granger Morgan of Carnegie-Mellon University, is defined as ". . . limiting exposures which can be avoided with small investments of money and effort" (Morgan 1991). Some municipalities or regulating agencies have proposed limitations on field strength, requirements for siting lines away from residences and schools, and, in some instances, moratoria on the construction of new transmission lines. The origin of these individual actions has been varied, with some initiated by regulators at the time of new transmission line proposals within their community and some by public grass-roots efforts.

California Department of Education's Standards for Siting New Schools Adjacent to Electric Power Lines Rated 50 kV and Above

The California Department of Education (CDE) evaluates potential school sites under a range of criteria, including environmental and safety issues. There are no EMF guidelines that apply to existing school sites; information is presented here on guidelines for new school siting in order to demonstrate the range of existing guidelines that address EMFs. Exposures to power-frequency EMFs are one of the criteria. CDE has established the following setbacks for locating any part of a school site property line near the edge of easements for any electrical power lines rated 50 kV and above:

- 100 feet for lines from 50 to 133 kV
- 150 feet for lines from 220 to 230 kV
- 350 feet for lines from 500 to 550 kV

School districts that have sites that do not meet the CDE setbacks may still obtain construction approval from the state by submitting an EMF mitigation plan. The mitigation plan should consider possible reductions of EMF exposures from all potential sources, including power lines, internal wiring, office equipment, and mechanical equipment.

CPUC Guidelines

In 1991, the CPUC initiated an investigation into electric and magnetic fields associated with electric power facilities. This investigation explored the approach to potential mitigation measures (MMs) for reducing public health impacts and possible development of policies, procedures, or regulations. Following input from interested parties, the CPUC implemented a decision (D.93-11-013) that requires that utilities use "low-cost or no-cost" MMs for facilities requiring certification under General Order 131-D. The decision directed the utilities to use a 4% benchmark on the low-cost mitigation. This decision also implemented a number of EMF measurement, research, and education programs, and provided the direction that led to preparation of the DHS study described above. The CPUC did not adopt any specific numerical limits or regulations on EMF exposure levels related to electric power facilities.

In Decision D.93-11-013, the CPUC addressed mitigation of EMFs of utility facilities and adopted the following recommendations:

- No-cost and low-cost steps to reduce EMF levels
- Workshops to develop EMF design guidelines
- Uniform residential and workplace programs
- Stakeholder and public involvement
- A four-year education program
- A four-year non-experimental and administrative research program
- An authorization of federal experimental research conducted under the National Energy Policy Act of 1992.

Most recently, the CPUC issued Decision D.06-01-042, on January 26, 2006, affirming the low-cost/no-cost policy to mitigate EMF exposure from new utility transmission and substation projects. This decision also adopted rules and policies to improve utility design guidelines for reducing EMF. The CPUC stated "at this time we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences." The CPUC has not adopted any specific limits or regulation on EMF exposure related to electric power facilities.

3.7.1.7 Other Safety Considerations

Transmission line structures used to support overhead transmission lines must meet the requirements of the CPUC, General Order No. 95, Rules for Overhead Electric Line Construction. Transmission support structures are designed to withstand different combinations of loading conditions including extreme winds. This design code and the National Electrical Safety Code include loading requirements related to wind conditions. Failures of transmission line support structures are extremely rare. Earthquake conditions could result in damage or faults to underground transmission lines; however, the project would be designed for dynamic loading under variable wind conditions that generally exceed earthquake loads; seismic conditions are discussed under Section 3.8, "Geology, Soils, Minerals, and Paleontology."

Pipeline Crossings

The proposed Eldorado–Ivanpah Transmission Line would be near or immediately adjacent to various pipelines that transmit gasoline, diesel, jet fuel, and natural gas (Clark County 2006b). There are also at least three major gas pipelines buried underground in both California and Nevada that may be located near the transmission ROW. The proposed telecommunications route would cross the Calnev pipeline (underground gas pipeline) at MP 6. Transmission Alternative Routes C and D and the Mountain Pass and Golf Telecommunications Alternatives would also cross the Calnev pipeline at various MPs as shown in Table 3.7-6 and Figure 2-3a Maps 1 through 5.

Powerline Crossings

The proposed Eldorado–Ivanpah Transmission Line would be near or immediately adjacent to the Los Angeles Department of Water and Power (LADWP) powerlines for most of its length and NV Energy powerlines for a portion of its length. The proposed transmission line would cross below existing powerlines at multiple locations. Alternative A would eliminate several transmission crossovers near the Eldorado Substation by using a new ROW adjacent to the LADWP Alternating Current (AC) transmission corridor near McCullough Pass. Overhead lines that would be near or immediately adjacent to the proposed Eldorado–Ivanpah Transmission Line would be identified by the applicant (APM W-13), and a power outage associated with the crossings is not anticipated.

Table 3.7-6 Pipeline Crossings

MP	EITP Component
4.46	Transmission Alternative Route C
0.87	Transmission Alternative Route D
6.26	Proposed Telecommunications Route
7.02	Mountain Pass Telecommunications Alternative
9.10	Mountain Pass Telecommunications Alternative
9.10	Golf Course Telecommunications Alternative
12.91	Mountain Pass Telecommunications Alternative
13.70	Mountain Pass Telecommunications Alternative
13.70	Golf Course Telecommunications Alternative

3.6.1.8 Fire Hazards

Wildfires consist of uncontrolled fire spreading through vegetative fuels and they increase safety risks for people and structures. Wildfires are caused by arson, campfires, the improper burning of debris, accidental ignition caused by the use of gas powered vehicles or tools or other anthropogenic activities, and lightning. Wildfire behavior may vary due to individual fire characteristics, topography, fuels (type and quantity of available flammable material, referred to as the fuel load) and weather conditions (temperature, humidity, wind, and lightning).

The proposed project area is situated primarily in open desert characterized by minimal vegetation and vacant land with sparse development areas in both Clark and San Bernardino counties. California has a system called CalFire to characterize the fire risks of areas. CalFire produces Fire Hazard Severity Zone maps that assign a hazard score based on the factors that influence fire likelihood and behavior. Many factors are considered such as fire history, existing and potential fuel (natural vegetation), flame length, blowing embers, terrain (steep terrain has a greater fire hazard severity), topography, and typical weather for the area. The 2008 Fire Hazard Severity Zone maps include areas where local governments have financial responsibility for wildland fire protection, known as local responsibility areas. Only lands zoned very high were identified within local responsibility areas. The portion of the project area along I-15 in San Bernardino County, California, is classified as a moderate fire zone according to the San Bernardino County fire hazards maps (San Bernardino County Fire Department 2010).

According to the Nevada Community Wildfire Risk/Hazard Assessment Project (RCI 2005), the Town of Primm is classified as a low hazard community with respect to fire. The vegetative fuel density in the Primm area is generally light, dominated by widely spaced creosote bush, Joshua trees, and yucca. Primm has a low wildfire ignition risk potential. There is no significant wildfire history in the area surrounding the community, and the recorded history of lightning strikes and other ignitions shows only one incident.

The applicant has developed a Fire Management Plan (APM HAZ-4) that addresses construction and operation activities for the proposed project by establishing standards and practices that would minimize the risk of fire danger, and, in the case of fire, provide for immediate suppression and notification. The Fire Management Plan addresses spark arrestors, smoking and fire rules, storage and parking areas, use of gasoline-powered tools, road closures, use of a fire guard, and fire suppression equipment and training requirements. In addition, all vehicle parking, storage areas, stationary engine sites, and welding areas would be cleared of all vegetation and flammable materials. All areas used for dispensing or storage of gasoline, diesel fuel, or other oil products would be cleared of vegetation and other flammable materials; these areas would be posted with a sign identifying them as "No Smoking" areas.

3.7.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of the federal, state, and local regulatory framework and the laws, regulations, and standards that govern hazards, health, and safety in the project area.

3.7.2.1 Federal

U.S. Environmental Protection Agency

In response to the growing public demand for cleaner water, air, and land, the U.S. EPA was established in 1970 to consolidate a variety of federal research, monitoring, standard-setting, and enforcement activities into one agency whose mission is to protect human health and the environment. The U.S. EPA develops and enforces congressional laws and regulations, offers financial assistance to state environmental programs, performs environmental research, and furthers environmental education. Where national standards are not met, the U.S. EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality (EPA 2008a). Additionally, the U.S. EPA administers the Land Disposal Restrictions (LDR) program, which includes standards for hazardous waste treatment and land disposal (EPA 2008b).

U.S. Department of Transportation

The U.S. Department of Transportation has regulatory responsibility for the safe transportation of hazardous materials under the Hazardous Materials Transportation Act, as amended and codified in 49 U.S.C. 5101 et seq. Vehicles transporting hazardous materials must comply with strict containment, safety, labeling, and manifesting requirements.

Federal Toxic Substances Control Act and Resource Conservation and Recovery Act 42 U.S.C. §6901 et seq.

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act (RCRA) of 1976 established a program administered by the U.S. EPA for regulating the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

RCRA regulates hazardous waste from the time that waste is generated through to its management, storage, transport, and treatment, and final disposal. Hazardous waste is regulated under RCRA subtitle C. The U.S. EPA has authorized the DTSC in California and the Nevada Division of Environmental Protection to administer their respective RCRA programs. A RCRA hazardous waste is a waste that appears on one of the four hazardous wastes lists or exhibits at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity. To keep track of hazardous waste activities, treatment, storage, and disposal (TSD) facility owners and operators must keep certain records and submit reports to the U.S. EPA at regular intervals. All facilities that generate, transport, recycle, treat, store, or dispose of hazardous waste are required to notify the U.S. EPA (or its state agency) of their hazardous waste activities. A U.S. EPA Identification Number must be obtained unless the solid waste has been excluded from regulation or the hazardous waste has been exempted. National Biennial RCRA Hazardous Waste Reports – §3002 and 3004 of RCRA require that the U.S. EPA collect information pertaining to hazardous waste management from hazardous waste generators and hazardous waste TSD facilities on a two-year cycle.

Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) of 1980, 42 U.S.C. §9601 et seq.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a federal Superfund to clean up uncontrolled or abandoned hazardous waste sites, as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. The U.S. EPA generally administers CERLCA. The U.S. EPA has the power to seek out those parties responsible for any release and require their cooperation in the cleanup. Congress enacted CERCLA, commonly known as Superfund, on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that could endanger public health or the environment. CERCLA established requirements for closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at

these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

The Superfund Amendments and Reauthorization Act of 1986, Title III 40 CFR § 68.110 et seq.

SARA amended CERCLA, establishing a nationwide emergency planning and response program and imposing reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. Administered by the U.S. EPA, the act requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. Additionally, SARA identifies requirements for planning, reporting, and notification concerning hazardous materials.

Clean Water Act, 33 U.S.C. Section 1251 et seq.

The Clean Water Act (CWA) is the principal federal statute protecting navigable waters and adjoining shorelines from pollution. The law was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. Since its enactment, the CWA has formed the foundation for regulations detailing specific requirements for pollution prevention and response measures. The U.S. EPA implements provisions of the CWA through a variety of regulations, including the NCP and the Oil Pollution and Prevention Regulations. Implementation of the CWA is the responsibility of each state. The CWA establishes basic structure for regulating discharges of pollutants into the waters of the United States, establishes pollution control programs such as setting wastewater standards for industry, and sets water quality standards for all contaminants in surface waters. Under CWA, it is unlawful for any person to discharge any pollutant from a point source into navigable waters without a permit.

Oil Pollution Prevention, 40 CFR Part 112

The goal of the oil pollution prevention regulation in 40 CFR Part 112 is to prevent oil discharges from reaching navigable waters of the United States or adjoining shorelines. The rule was also written to ensure effective responses to oil discharges. The rule further specifies that proactive measures be used to respond to oil discharges. The oil pollution regulation contains two major types of requirements: prevention requirements (Spill Prevention, Control, and Countermeasure [SPCC] rule), and Facility Response Plan (FRP) requirements.

Facilities that could reasonably be expected to discharge oil into navigable waters in quantities that may be harmful are required to develop and implement SPCC plans per the SPCC rule. U.S. EPA amended the SPCC Rule in 2006 to extend the SPCC compliance dates in §112.3(a), (b), and (c) for all facilities until October 31, 2007. SPCC plans must be prepared, certified (by a professional engineer), and implemented by facilities that store, process, transfer, distribute, use, drill, produce, or refine oil or oil production.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) administers Occupational Safety and Health Standards (29 CFR §§1910 and 1926). These standards (1) provide regulations for safety in the workplace, (2) regulate construction safety, and (3) require a Hazard Communication Plan. The Hazard Communication Plan must include identification and inventorying of all hazardous materials for which Material Safety Data Sheets would be maintained, and must provide for employee training in safe handling of said materials.

Title 29 CFR, Part 1910.302, Sub-part S: Design Safety Standards for Electrical Systems, and 1910.331, Electrical Safety-Related Work Practices Standard (1990), describes concepts and principles associated with electrical hazards and basic electrical safety for individuals. OSHA's electrical standards for construction recommend general industry

electrical standards whenever possible for hazards that are not addressed by industry-specific standards. The standards address concerns that relate to electrical hazards and exposures to dangers such as electrical shock, electrocution, burns, fires, and explosions. OSHA's electrical standards help minimize these potential hazards by specifying safety aspects in the design and use of electrical equipment and systems.

Federal Aviation Administration Regulations

FAA regulations address potential aircraft obstruction for structures taller than 200 feet or within 20,000 feet of an airport. Specifically, Federal Regulation Title 14, Part 77, ~~established~~ establishes standards and notification requirements for objects that have the potential to affect navigable airspace. ~~In 1993, Part 77.13(a)(5)(ii) was revised to include only those airports under construction and excluded proposed airports (FAA 1993). Nonetheless, the~~The Part 77 standards are intended to (1) evaluate the effect of the construction or alteration of structures on airport operating procedures; (2) determine if there is a potential hazard to air navigation; and (3) identify measures to enhance safety. Specifically, the FAA requires notification through the filing of FAA Form 7460, Notice of Proposed Construction or Alteration, if a structure is over 200 feet in height or closer than 20,000 feet to an existing or proposed airport or airport under construction (Title 14, Part 77.13).

3.7.2.2 State

Nevada

Nevada State Plan

The Nevada State Plan is administered by the Division of Industrial Relations, Department of Business and Industry. Enforcement of the plan is provided by the Nevada Occupational Safety and Health Administration, and consultation is provided by the Nevada Safety Consultation and Training Section. The State of Nevada, under an agreement with OSHA, operates an occupational safety and health program in accordance with Section 18 of the Occupational Safety and Health Act of 1970. Initial approval of the Nevada state plan was published on January 4, 1974, and final approval was published on April 18, 2000 (Nevada Occupational Safety and Health Administration 2000).

Nevada Revised Statute – Hazardous Materials, Chapters 459 and 477

The Nevada Revised Statutes (NRS) Chapter 459 regulates hazardous materials in Nevada, including radioactive materials, highly hazardous substances, and explosives. Section 459.400 et seq. also includes provisions, definitions and jurisdictional responsibilities for hazardous waste disposal. NRS 477.045 and NRS 477.047 establish provisions for training programs for response to spills, permits for the storage of hazardous materials, surcharges for permits, and a mobile training team for volunteer firefighters to respond to incidents involving hazardous materials. This regulation states that the Nevada State Fire Marshal must establish a statewide training program for response to spills of hazardous materials and related fires, and also requires persons who store hazardous materials to obtain a permit to do so. The revenue derived by the State Fire Marshal pursuant to this section is deposited to the Contingency Account for Hazardous Materials.

Nevada Revised Statute – Emergency Management, Chapter 414

General provisions of the Emergency Management Statute (NRS 414.200 et seq.) include the following:

- Eliminating or reducing the probability that an emergency would occur, or reducing the effects of unavoidable disasters;
- Testing periodically the plans for emergency operations to ensure that the activities of state and local government agencies, private organizations, and other persons are coordinated;
- Restoring the operation of vital community life-support systems and returning persons and property affected by an emergency or disaster to a condition that is comparable to, or better than, what existed before the emergency or disaster occurred.

Nevada Division of Environmental Protection, Department of Conservation and Natural Resources

Nevada Department of Environmental Protection (NDEP) is the state agency responsible for the response and remediation of hazardous materials incidents, as designated by the State Comprehensive Emergency Management Plan. NDEP's Bureau of Corrective Actions (BCA) maintains the BCA Spill Reporting Hotline. Spills in excess of quantities established under NRS (Chapter 459) or EPA guidelines (40 CFR Part 302) must be reported (NDEP 2010).

Nevada Division of Emergency Management, Nevada Department of Public Safety

The Nevada Division of Emergency Management operates under the authority of NRS 414. The Nevada Division of Emergency Management is responsible for staffing the State Emergency Operations Center when a disaster or emergency threatens, as well as prior to and during large-scale events. The Clark County and Las Vegas Fire Departments provide emergency response.

Nevada Task Force 1

Nevada Task Force 1 is one of 28 Federal Emergency Management Agency (FEMA) Urban Search and Rescue task forces that are prepared to respond to state or federal disasters throughout the United States. The task force can be deployed by FEMA to rescue victims of human-caused or natural disasters. Nevada Task Force 1 consists of members from the Clark County Fire Department, Las Vegas Fire and Rescue, and the Henderson and North Las Vegas fire departments, as well as civilians from several private companies.

California

California Environmental Protection Agency

The California Environmental Protection Agency (Cal/EPA) was created in 1991. Cal/EPA unified California's environmental authority under one agency, consolidating the California Air Resources Board, SWRCB, RWQCBs, the Integrated Waste Management Board, the DTSC, the Office of Environmental Health Hazard Assessment, and the Department of Pesticide Regulation. These agencies were placed under the Cal/EPA umbrella to create a cabinet-level voice to protect human health and the environment and to ensure the coordinated deployment of state resources. Cal/EPA's mission is to restore, protect, and enhance the environment, and to ensure public health, environmental quality, and economic vitality.

The California Hazardous Waste Control Law (HWCL) is administered by Cal/EPA to regulate hazardous wastes. While the HWCL (California Health and Safety Code, Division 20, Chapter 6.5) is generally more stringent than RCRA, until the EPA approves the California program, both the state and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging and labeling hazardous wastes; prescribes management controls; establishes permit requirements for TSD and transportation; and identifies some wastes that cannot be disposed of in landfills.

Department of Toxic Substance Control

DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, administers clean-ups of existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA ~~and~~, the California HWCL (California Health and Safety Code, Division 30, Chapter 6.5), and the Hazardous Waste Control Regulations (California Code of Regulations [CCR], Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. DTSC manages, maintains, and monitors the CORTESE list of hazardous waste sites.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 ~~California Code of Regulations~~ [CCR] Sections 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings. A Hazard Communication Plan would be required for the project, to include identification and inventorying of all hazardous materials with Material Safety Data Sheets, and outlining employee training in safe handling of those materials.

California Emergency Management Agency

The California Emergency Management Agency (Cal/EMA) was formed January 1, 2009, as the result of a merger between the Governor's Office of Emergency Services (OES) and the Office of Homeland Security. The Hazardous Materials Unit of the Cal/EMA is responsible for hazardous materials (HAZMAT) emergency planning and response, spill release and notification, and HAZMAT enforcement of the Unified Program. OES provides emergency response services in support of local jurisdictions.

California-Nevada Supplemental Interstate Compact for Emergency Mutual Assistance, July 2007

Under the Supplemental Interstate Compact, the states of California and Nevada agree to provide emergency mutual aid assistance, whether an emergency has or has not been a governor-declared state of emergency. This compact supplements the EMA Compact agreed to by both states, which specifically addresses state-declared emergencies.

3.7.2.3 Regional and Local

Clark County, Nevada, and San Bernardino County, California, are parties to a "civil defense mutual aid compact" that allows for both county agencies to provide emergency services, supply material and equipment, and allow for the exchange of information when a declared disaster exists within either jurisdiction.

Clark County

Clark County Fire Department

The Clark County Fire Department maintains first responder responsibility for incidents within unincorporated areas of Clark County. Specific responsibilities include Urban Fire Services; Rural Fire Services; Aircraft Rescue Fire Fighting; Emergency Medical Services including Basic, Intermediate and Advanced Life Support (Paramedic Program); Hazardous Materials Response Team; Fire Prevention; Fire Investigation; Disaster and Emergency Preparedness; Public Education; and Technical Rescue including:

- Urban Search and Rescue Team (FEMA National Response Team)
- Confined Space Rescue
- Heavy Rescue
- Swift Water Rescue

Clark County Office of Emergency Management (Code, Chapter 3.04)

The Clark County Office of Emergency Management created an integrated emergency management public safety division that facilitates coordination of multi-agency public safety projects, including emergency management planning, preparation activities such as training and exercises, and response support coordination during emergencies (Ord. 2762 (part), 2002; Ord. 1881 §1 (part), 1996). The agency provides coordination support for the

mitigation, preparation, response, and recovery activities necessary for protection of lives and property within Clark County (Clark County 2005).

Clark County Multi-Jurisdictional Hazard Mitigation Plan

The Clark County Multi-Jurisdictional Hazard Mitigation Plan establishes a strategy to implement improvements and programs to reduce community and regional impacts in the event of a natural disaster. The plan covers the unincorporated area of Clark County and the cities of Boulder, Henderson, Las Vegas, North Las Vegas, and Mesquite. The Clark County Fire Department is the lead agency for hazardous events. The Clark County and Las Vegas fire departments are responsible for continued update of emergency evacuation plans for wildland fire incidents as an extension of the agency's responsibility for Hazard Mitigation Planning in Clark County (Clark County 2005).

San Bernardino County

San Bernardino County Fire Department

The San Bernardino County Fire Department (SBCFD) acts as the CUPA and is responsible for reviewing Hazardous Materials Business Plans. The SBCFD is responsible for protection of the health and safety of the public and the environment of the County of San Bernardino by assuring that hazardous materials are properly handled and stored. The Department accomplishes this through inspection, emergency response, site remediation, and hazardous waste management services (SB County 2009a). Specific responsibilities include:

- Inspecting hazardous material handlers and hazardous waste generators to ensure full compliance with laws and regulations. Implementing CUPA programs for the development of accident prevention and emergency plans, proper installation, monitoring, and closure of underground tanks, and the handling, storage, transportation, and disposal of hazardous wastes.
- Providing 24-hour response to emergency incidents involving hazardous materials or wastes to protect the public and the environment from accidental releases and illegal activities.
- Overseeing the investigation and remediation of environmental contamination due to releases from USTs, hazardous waste containers, chemical processes, or the transportation of hazardous materials.
- Conducting investigations and taking enforcement action as necessary against anyone who disposes of hazardous waste illegally or otherwise manages hazardous materials or wastes in violation of federal, state, or local laws and regulations.

3.7.3 Impact Analysis

This section defines the methodology used to evaluate impacts for hazards, health, and safety, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.7.4.

3.7.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to hazards, health, and safety would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

Under NEPA, significant effects to health and safety would occur if the proposed project would:

- Use, store, or dispose of oil and/or hazardous materials in a manner that results in a release to the environment in an amount equal to or greater than the reportable quantity for that material or creates a substantial risk to human health;
- Result in mobilization of contaminants currently existing in the soil, creating potential pathways of exposure to humans or other sensitive receptors;
- Cause contamination of soils or groundwater within the project area during operation of the project, resulting in exposure of workers and/or the public to contaminated or hazardous materials at levels in excess of those permitted by CAL/OSHA in CCR Title B and the federal OSHA in Title 29 CFR Part 1910;
- Threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment; or
- Present an obstruction or hazard to air navigation as determined by FAA under 14 CFR Part 77.

3.7.3.2 CEQA Impact Significance Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create significant hazard to the public or the environment;

e. Be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project vicinity;

f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or

g. Expose people or structures to a significant risk of loss, injury, or death involving wildfires.

3.7.3.3 Methodology

Baseline conditions for the impact analysis were established in Section 3.7.1, "Environmental Setting," and Section 3.7.2, "Regulatory Setting." The thresholds applicable to the analysis of potential impacts on hazards under CEQA or NEPA include reportable quantities under CERCLA and quantitative exposure thresholds under OSHA/Cal/OSHA. The criteria were defined based on a review of EIR/EIS documents for similar projects in the vicinity of the proposed project (SCE 2008) and Appendix G of the CEQA Guidelines.

County maps were reviewed to determine the project's proximity to schools and airports. In addition, the potential risk of fire based on local hazard maps was considered, and local agencies' relevant emergency response plans and airport land use plans were reviewed. Emergency plans and hazard management plans and evacuation routes for Clark and San Bernardino counties were also reviewed.

To help evaluate impacts from project-related contamination, sites with known or potential contamination along or near the proposed transmission line route were researched by review of online environmental databases, including the National Priorities List, Envirostor, the Resource and ~~identification~~ Recovery Information System, the Comprehensive Environmental Response Compensation and Liability Information System, the Solid Waste Information System, GeoTracker, local county and city websites, and the United States Army Corps of ~~land~~ Engineers' list of Formerly Used Defense Sites. Land uses associated with hazardous material use were also identified. The purpose of this review was to better define the areas where hazardous waste-contaminated sites could impact construction activities. The primary reason to define potentially hazardous sites is to protect worker health and safety and to minimize public exposure to hazardous materials during construction and waste handling. If encountered, contaminated soil may qualify as hazardous waste, thus requiring transport, handling, and disposal according to local, state, and federal regulations.

3.7.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to hazards, health, and safety:

APM HAZ-1: Phase I Environmental Site Assessment. A Phase I Environmental Site Assessment would be performed at each new or expanded substation location and along newly acquired transmission or subtransmission line ROWs. The Phase I Environmental Site Assessment would include an electronic records search of federal, state, and local databases. The electronic records search would be contracted to a company which specializes in this type of work and who would produce a comprehensive report (Report) for the new or expanded ROW. The Report is used to identify sites located on federal, state, and local government agency databases which may have the potential to impact the proposed project.

The Report would be reviewed and, based on such review, any potential areas of concern along the ROW would be identified for further assessment. In addition, a Phase I Environmental Site Assessment which is compliant with ASTM 1927-05 (ASTM 2005) would be performed on all property to be acquired.

Based on the results of the Phase I Environmental Site Assessment, additional assessment, characterization, and remediation of potential or known subsurface impacts may be conducted prior to construction activities. Such remediation could include the relocation of transmission line structures as necessary to avoid impacted areas, or the removal and disposal of impacted soils and/or groundwater according to applicable regulations.

APM HAZ-2: Hazardous Materials and Waste Handling Management. Hazardous materials used and stored on-site for the proposed construction activities, as well as hazardous wastes generated on-site as a result of the proposed construction activities, would be managed according to the specifications outlined below as follows:

- **Hazardous Materials and Hazardous Waste Handling Program:** A Project-specific hazardous materials management and hazardous waste management program would be developed prior to initiation of the Project. The program would outline proper hazardous materials use, storage and disposal requirements, as well as hazardous waste management procedures. The program would identify types of hazardous materials to be used during the Project and the types of wastes that would be generated.

  All Project personnel would be provided with Project-specific training. This program would be developed to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner. Hazardous wastes would be handled and disposed of according to applicable rules and regulations. Employees handling wastes would receive hazardous materials training and shall be trained in: hazardous waste procedures; spill contingencies; waste minimization procedures; and TSDF training in accordance with OSHA Hazard Communication Standard and 22 CCR. SCE would use landfill facilities that are authorized to accept treated wood pole waste in accordance with HSC 25143.1.4(b).

- **Construction Stormwater Pollution Prevention Plan:** A Project-specific construction SWPPP would be prepared and implemented prior to the start of construction of the transmission line and substations. The SWPPP would use BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities (California Stormwater Quality Association 2004).

- **Transport of Hazardous Materials:** Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline), and oil and lubricants for equipment. Containers used to store hazardous materials would be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials used would be established in accordance with USDOT, CalTrans, and NDOT regulations. A qualified transporter would be selected to comply with federal and state transportation regulations.

- **Fueling and Maintenance of Construction Equipment:** Written procedures for fueling and maintenance of construction equipment would be prepared prior to construction. Vehicles and equipment would be refueled on-site or by tanker trucks. Procedures would include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground.

  Refueling stations would be located in designated areas where absorbent pads and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet.

- **Fueling and Maintenance of Helicopters:** Written procedures for fueling and maintenance of helicopters would be prepared prior to construction. Helicopters would be refueled at helicopter staging areas or local airports. Procedures would include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas would be located in designated areas where absorbent pads and trays are available.

- **Emergency Release Response Procedures:** An Emergency Response Plan detailing responses to releases of hazardous materials would be developed prior to construction activities. It would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of the quantity spilled, would be immediately reported if the spill has entered a navigable water, stream, lake, wetland, or storm drain if the spill impacted any sensitive area, including conservation areas and wildlife preserved, or if the spill causes injury to a person or threatens injury to public health. All construction personnel, including environmental monitors, would be aware of state and federal emergency response reporting guidelines.

APM HAZ-3: Soil Management Plan. A Soil Management Plan would be developed and implemented for construction of the proposed project. The objective of the Soil Management Plan is to provide guidance for the proper handling, on-site management, and disposal of impacted soil that might be encountered during construction activities. The plan would include practices that are consistent with the California Title 8, OSHA regulations, as well as appropriate remediation standards that are protective of the planned use. Appropriately trained professionals would be on-site during preparation, grading, and related earthwork activities to monitor soil conditions encountered. The Soil Management Plan would provide guidelines for the following:

- Identifying impacted soil
- Assessing impacted soil
- Soil excavation

- Impacted soil storage
- Verification sampling
- Impacted soil characterization and disposal

In the event that potentially contaminated soils were encountered within the footprint of construction, soils would be tested and stockpiled. In California, the CUPA would determine whether further assessment is warranted. In Nevada, the NDEP BCA Spill Hotline (888-331- 6337) would be contacted if the quantity of impacted material is greater than 3 cubic yards.

APM HAZ-4: Fire Management Plan. The Fire Management Plan developed by SCE and presented in this PEA as Appendix K would be implemented (National Fire Association 1994).

APM HAZ-5: Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan.

Spill Prevention, Countermeasure, and Control Plan. In accordance with Title 40 of the CFR, Part 112, SCE would prepare a SPCC Plan for proposed and/or expanded substations. The plans would include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup.

Hazardous Materials Business Plans. Prior to operation of new or expanded substations, SCE would prepare or update and submit, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, a HMBP. The required documentation would be submitted to the designated CUPA in California. (An HMBP or similar documentation is not required by the state of Nevada.) The HMBPs would include hazardous materials and hazardous waste management procedures, and emergency response procedures including emergency spill cleanup supplies and equipment.

~~**APM HAZ-1: Phase I Environmental Site Assessment.** A Phase I Environmental Site Assessment would be performed at each new or expanded substation location and along newly acquired transmission or subtransmission line ROWs. The Phase I Environmental Site Assessments would include an electronic records search of federal, state, and local databases. The electronic records search would be contracted to a company that specializes in this type of work and that would produce a comprehensive report for the new or expanded ROW. The comprehensive report is used to identify sites in federal, state, and local government agency databases that may have the potential to impact the proposed project; based on a review of the report, any potential areas of concern along the ROW would be identified for further assessment. In addition, a Phase I Environmental Site Assessment that is compliant with American Society for Testing Materials (ASTM) Standard 1927-05 would be performed on all property to be acquired. Based on the results of the Phase I Environmental Site Assessment, additional assessment, characterization, and remediation of potential or known subsurface impacts may be conducted prior to construction activities. Such remediation could include the relocation of transmission line structures as necessary to avoid impacted areas, or the removal and disposal of impacted soils and/or groundwater according to applicable regulations.~~

~~**APM HAZ-2: Hazardous Materials and Waste Handling Management Plan.** The applicant would develop programs and policies for management of hazardous materials including a Hazardous Materials and Hazardous Waste Handling Program, Construction Stormwater Pollution Prevention Plan, and procedures for Transport of Hazardous Materials, Fueling and Maintenance of Construction Equipment, Fueling and Maintenance of Helicopters, and Emergency Release Response. This plan would be valid during project construction and operation.~~

~~**APM HAZ-3: Soil Management Plan.** The applicant would develop a Soil Management Plan that would provide guidance for the proper handling, onsite management, and disposal of impacted soil that might be encountered during construction activities.~~

~~**APM HAZ-4: Fire Management Plan.** The applicant would implement a Fire Management Plan.~~

~~**APM HAZ-5: SPCCP and Hazardous Materials Business Plan.** The applicant would implement a Spill Prevention, Countermeasure, and Control Plan (SPCCP) for preventing, containing, and controlling potential releases; provisions for quick and safe cleanup and a Hazardous Materials Business Plan (HMBP) that would include hazardous waste management procedures; and emergency response procedures including emergency spill cleanup supplies and equipment. This plan would be valid during project construction and operation.~~

APM LU-1: Aeronautical Considerations. The applicant would submit notice to FAA electronically in accordance with FAA procedures and as far in advance of construction as possible.

APM AES-8: Substation Lighting Control. The substation lighting would be designed to be manually operated so that it could be turned on only when required for non-routine nighttime work. The lighting would be directed downward and shielded to eliminate offsite light spill at times when the lighting might be in use.

APM PUSVC-1: Work around High-Pressure Pipelines. No mechanical equipment will be permitted to operate within 3 feet of the high-pressure pipelines, and work within 3 feet must be done by hand or as otherwise directed by the pipeline company.

APM PUSVC-2: Monitoring by Pipeline Companies. Representatives of applicable owners and operators of major pipeline companies must observe the excavation around or near their facilities to ensure protection and to record pertinent data necessary for operations.

APM TRA-1: Obtain Permits. If any work required modifications or activities within local roadway and railroad ROWs, appropriate permits would be obtained prior to the commencement of construction activities, including any necessary local permits and encroachment permits.

APM TRA-2: Traffic Management and Control Plans. Traffic control and other management plans would be prepared where necessary to minimize project impacts on local streets and railroad operations.

APM TRA-3: Minimize Street Use. Construction activities would be designed to minimize work on, or use of, local streets.

APM W-13: Identify Location of Underground Utilities Prior to Excavation. Prior to excavation, the applicant or its contractors would locate overhead and underground utility lines, such as natural gas, electricity, sewage, telephone, fuel, and water lines, or other underground structures that may reasonably be expected to be encountered during excavation work.

3.7.3.5 Proposed Project / Proposed Action

Construction and operation activities of the EITP would take place within the transmission line ROW within the BLM-designated utility corridor. Potential hazardous impacts include accidental spill or release of fuels or chemicals, mobilization of existing contamination, interference with emergency response and evacuation, and wildfires.

Accidental spill or release of fuels or chemicals

During construction and operation of the all of the EITP components (transmission lines, substations, telecommunication lines), there would be a potential for incidents involving release of gasoline, diesel fuel, oil, hydraulic fluid, and lubricants from improperly maintained vehicles or other equipment. In addition, spills or accidental release of paints, solvents, adhesives, or cleaning chemicals may occur.

The EITP would have six fenced temporary construction yards (one in San Bernardino County, California, and five within Clark County, Nevada) that would house employee vehicles, construction equipment and materials, and tanker trucks that would hold roughly 500 gallons of gas or diesel, and aviation (100LL) fuels for project vehicles and equipment. Routine maintenance of construction vehicles and equipment would be conducted within the construction yards. Hazardous materials that would be used, transported, and stored on the site are as follows:

- Transformer oil

- Dielectric fluids
- Fuels (diesel, gas)
- Lube oils and grease
- Used oil
- Solvents, coatings, and paints
- Compressed gas
- Propane
- Sulfur hexafluoride (SF_6) gas

Additional hazardous materials include joint compounds that are applied from 1-pound tubes to compression fittings to protect aluminum components from water-induced corrosion. Certain joint compounds, such as Alcoa's Electrical Joint Compound No. 2, may contain hydrogen fluoride, a component listed in California as a hazardous substance.

Upgrades to the existing Eldorado Substation would involve removal of the existing 220/115-kV transformer, which would be placed in emergency stock or salvaged for reuse. Transformer removal would involve a sequence of activities: (1) oil testing for polychlorinated biphenyl (PCB) identification, (2) oil removal and disposal/recycle by specialized contractors, (3) disconnection of all primary and secondary conductors, (4) installation of cap plates to cover bushings mount holes on transformers, (5) removal of all hazardous materials from control cabinets, (6) removal of welded end bed plates, and (7) transportation and shipping to emergency stock or salvage storage room. The new Ivanpah Substation would have associated land disturbances due to the establishment of new yards. The proposed telecommunication system would consist of an optical ground wire and combined microwave system, and approximately 5 miles of fiber optic cable would be placed in an underground duct.

The applicant's Hazardous Materials and Waste Handling Management Plan (APM HAZ–2) would provide project-specific training for workers to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner including proper storage and handling of hazardous materials and written procedures for fueling and maintaining construction equipment to ensure that chemicals do not come into contact with the ground. Equipment would be inspected daily for potential leakage or failures, and fuel tanks would be surrounded by a secondary containment area or be placed in an area where the ground was covered with an impermeable liner. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet (APM HAZ-2). The applicant's SPCC Plan and Hazardous Materials Business Plan (APM HAZ-5) would guide quick and safe cleanup of accidental spills of hazardous materials. Additionally, MM HAZ-1 requires that the applicant conduct a worker safety and environmental training program, which would further reduce risks associated with hazardous materials and releases~~.~~, and MM HAZ-3 requires that a work plan outlining the applicant's remediation activities be submitted to the appropriate agencies for their approval.

The SPCC Plan would be required by law at the Ivanpah Substation during construction and operation and maintenance, since the proposed 230/115-kV transformers would be in excess of 1,320 gallons of mineral oil (40 CFR 112). The applicant would implement temporary and permanent spill control measures prior to the delivery of transformers to the substation site. Substation personnel would be trained in the execution of the SPCC Plan during operations and maintenance.

Soil Contamination / Mobilization of Contamination / Contaminated Sites

During construction and operation, contamination of soils and/or mobilization of contaminated soils could occur as a result of land disturbance such as installation of asphalt and concrete, inappropriate handling of transformer fluids, improper disposal of hazardous materials, and accidental spills or encounters of unknown contaminated sites during trenching and grading activities. However, release or mobilization of contamination and/or PCBs in soils or fuels is

expected to be localized and minimal with the incorporation of APMs HAZ-2 and HAZ-3 during construction and APMs HAZ-3 and HAZ-5 during operations.

Within the project area, facilities handling hazardous materials or fuels are the Molycorp Rare Earth Mineral Facility (nine land disposal facilities), three USTs in the Town of Primm, and the Primm Valley Golf Course. There are also four USTs in the Town of Jean. The Molycorp Mine at Mountain Pass facility is an active mining facility that is undergoing remediation to reduce existing contamination. The Molycorp location is approximately 6.5 miles from the project at its closest point and would not be impacted by the project. The Primm Valley Golf Course, which is located on top of a former landfill, is more than 0.4 miles from the proposed project at its closest point and would not be impacted by the EITP. The UST locations within the Town of Primm are located at gas stations and therefore would not be impacted by the project.

It is unlikely that previously unknown contaminated sites would be discovered during grading and trenching for installation of project towers and underground cables. The applicant has committed to conducting a Phase I ~~ESA~~Environmental Site Assessment (APM HAZ-1) to determine the presence or absence of recognized environmental conditions in areas of planned ground disturbance prior to initiation of construction. If it is determined that an existing environmental contamination site may be encountered along the proposed EITP project route, a minor re-route could occur within the ROW to avoid disturbance of a contaminated site or, if appropriate, the contaminated soil could be addressed so that the project would not have to be re-routed. To minimize, avoid, and/or clean up unforeseen spill of hazardous materials during construction and operation, for each EITP component, workers would follow the Soil Management Plan (APM HAZ-3) guidelines for identification and handling of contamination, as well as the plans and procedures named in APM HAZ–5. To further reduce impacts, MM HAZ-3 requires that a work plan be submitted to and approved by the appropriate agency prior to initiating any remediation work. If backfill material is used, MM HAZ-5 is required to determine that it would be contaminant-free before it is used to fill excavations.

Pipeline Crossings, Transmission Crossings and EMF

Portions of the EITP ~~could~~may be located close to existing underground pipelines and would cross below overhead powerlines. Prior to commencement of any grading activities in California or Nevada, the applicant would be required by law to contact the appropriate Underground Service Alert organization to identify the location of underground utilities and pipelines. In addition, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1), and a representative for the pipelines would be present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). Overhead lines that would be near or immediately adjacent to the proposed transmission line would be identified by the applicant (APM W-13), and it is not anticipated that there would be a power outage associated with the crossings. Furthermore, in response to public concern, Section 3.7.1.6 presents an overview of the effects of exposure to EMFs for the consideration of both lawmakers and the public.

Hazardous Waste Disposal

Construction of the EITP transmission lines and telecommunication lines would involve removal of six wood poles and 23 H-frames that support the existing 115-kV transmission line. The wood poles are chemically treated (that is, they will be hazardous waste) and they would need to be disposed in a permitted Class I hazardous waste landfill, returned to the manufacturer, or recycled for an unrelated project(s). ~~The wood poles would be replaced with lattice steel towers (LSTs) or tubular steel poles (TSPs). The new TSPs and LSTs that would be installed to support the new transmission and telecommunication towers would require multiple drilled, poured-in-place, concrete footings to form the structure foundation. The foundation process would start with drilling the boreholes for each footing~~ MM HAZ-4 requires that all debris generated during project-related demolition must be tested for the presence of hazardous chemicals, mercury, asbestos, and any other materials that may be deemed hazardous. In addition, MM HAZ-6 requires that the applicant obtain an EPA Identification Number before construction and determine whether the treatment, handling, or storing of hazardous materials would require authorization of the local Certified

Unified Program Agency. Implementation of MM HAZ-4 and MM HAZ-6 would assure that the applicant properly identifies and disposes of hazardous construction waste.

Interference with Emergency Response and Evacuation Routes

During construction and operation, activities that could affect traffic and emergency routes include equipment delivery necessitating lane closures and stringing lines across major and local roadways. The proposed transmission line would cross I-15 near MP 29 at the California/Nevada border. The proposed project would be serviced by I-15, a major north–south divided freeway through San Bernardino County in California and Clark County in Nevada. This stretch of I-15 varies in width from four to six lanes. In Nevada, I-15 is the major transportation route between the California-Nevada border (MP 28) and the Las Vegas metropolitan area. If lane closures were necessary for construction or maintenance of the EITP, the applicant would have to obtain an encroachment permit from the appropriate authorities (California or Nevada departments of transportation [CalTrans or NDOT]) for work that would be performed within roadways and railroad ROWs (APM TRA-1). A Traffic Management and Control Plan (APM TRA-2) would specify how the flow of traffic would be controlled and how emergency situations would be addressed. The applicant would also implement best management practices (BMPs) such as use of flaggers, identification of detours, and appropriate communications with stakeholders. Traffic impacts are further discussed in Section 3.14, "Traffic and Transportation."

Safety Hazards within 2 Miles of a Public Airport or Public Use Airport

Jean Sport Aviation Center, the closest public or private airport to the EITP, is 5 miles from the EITP. Therefore, the proposed project would not increase safety hazards related to existing public or private airports within 2 miles of the project during construction.

An EIS for the SNSA, which would be within 0.5 miles of the EITP, ~~is in progress and is expected to be completed by the fourth quarter of 2012. However, it is not possible to determine whether the EITP would impact the future SNSA until completion of the SNSA EIS and approval of that project.~~ has been put on hold. Regardless, the EITP applicant has included APM LU-1, which states that the applicant would notify the FAA as far in advance of construction as possible. As currently proposed, the SNSA boundary would be within 0.5 miles (2,640 feet) north of MP 26 of the EITP transmission line, and the LSTs that would support the transmission line would be 180 feet tall. ~~Ordinarily, the FAA requires the filing of~~ SCE has applied for Hazard/No Hazard Determinations for structures closer than 20,000 feet to ~~an~~ the proposed airport boundary ~~and for structures that are 200 feet tall~~. While the proposed SNSA ~~would not complete construction until 2020 (after construction of the EITP)~~ has been put on indefinite hold, to reduce hazards associated with future flight path obstruction and electromagnetic interference, the applicant will implement MM HAZ-2. MM HAZ-2 requires that the applicant ~~consult with the~~ comply with the FAA's requirements when the SNSA is constructed ~~on final project design and whether a Hazard/No Hazard Determination is required~~. For further discussion of the SNSA, see Section 3.9, "Land Use," and Chapter 5, "Cumulative Scenario and Impacts."

Fire Risk

The risk of fire danger from the proposed project would be related to the combustion of native materials due to smoking, refueling, and operating vehicles and other equipment off roadways. Welding during construction of towers or support structures could result in the combustion of native materials close to the welding site. Brushing activities for vegetation control and removal during construction could ~~result in fire.~~present a fire hazard if the vegetation debris is not removed from areas of welding. Electrical arcing from power lines could create a fire hazard. Fire hazards from high voltage transmission lines are greatly reduced through the use of taller structures and wider ROWs.

The proposed project is located within low fire hazard areas, and the applicant would implement a Fire Management Plan (APM HAZ-4) to minimize impacts associated with wildfire hazards. APM HAZ-4 establishes standards and practices that would minimize the risk of fire danger and, in the case of fire, provide for immediate suppression and notification. The Fire Management Plan addresses spark arrestors, smoking and fire rules, storage and parking

areas, use of gasoline powered tools, road closures, use of a fire guard, and fire suppression equipment and training requirements. In addition, all vehicle parking, storage areas, stationary engine sites, and welding areas would be cleared of all vegetation and flammable materials. All areas used for dispensing or storage of gasoline, diesel fuel, or other oil products would be cleared of vegetation and other flammable materials. These areas would be posted with a sign identifying them as "No Smoking" areas. Furthermore, the proposed project is not located in an area designated as a high fire risk area in either Clark County, Nevada, or San Bernardino County, California.

NEPA Summary

During construction and operation of the EITP (transmission lines, substations, telecommunication lines), hazards such as accidents or spills from improper use, storage, or disposal of oil and/or hazardous materials would be minor, short term, and localized. Impacts from reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would likely be minor, localized, and short term. During construction, the applicant would use their Hazardous Materials and Waste Handling Management Program (APM HAZ-2), which includes use, proper storage, and handling procedures as well as standards for hazardous waste transport. During operation and maintenance, the applicant would implement their SPCC Plan and Hazardous Materials Business Plan (APM HAZ-5) to facilitate quick and safe cleanup of accidental spills of hazardous materials. Implementation of a Worker Health and Safety Plan (MM HAZ-1) would reduce the risk of exposure to workers and the public and minimize the potential for release of hazardous materials. Additionally, MM HAZ-3 would require the applicant to submit a work plan to the appropriate agency for its review and approval prior to initiating any remediation work, and if backfill is used, MM HAZ-5 would require that it is tested and determined to be contaminant-free before being used.

During construction and operation of the EITP, the potential to expose the public to previously unidentified contamination or to mobilize existing contaminants already existing in soils could result in only a minor, short-term, and localized impact because of the precautions that would be taken by the applicant and the unlikelihood of encountering contamination. The proposed project would not traverse any known contaminated sites, but it would cross or would be in close proximity to fuel pipelines. The applicant would conduct a Phase 1 ~~ESA~~Environmental Site Assessment (APM HAZ-1) to identify recognized environmental conditions in the vicinity of the ROW prior to the start of construction, and MM HAZ-3 would require that the applicant prepare and submit a work plan to the appropriate agency for its review and approval prior to initiating the Phase I Environmental Site Assessment or any remedial activities. Before any grading activities would occur in California or Nevada, the applicant would be required to utilize the appropriate Underground Service Alert organization to identify the location of underground utilities and pipelines. In addition, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1), and a representative for the pipelines would be present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). In addition, the applicant's Soil Management Plan (APM HAZ-3) provides guidance for the proper handling, onsite management, and disposal of impacted soil that might be encountered during construction activities. ~~With respect to potential hazards to aviation, FAA has recommended distances between power lines and navigational equipment. The applicant would coordinate with FAA (MM HAZ-2) and notify the FAA in advance of construction (APM LU-1) to ensure that the EITP did not interfere with proposed navigational facilities and flight paths.~~ Implementation of MM HAZ-4 and MM HAZ-6 would further require that the applicant properly identifies and disposes of hazardous construction waste. With respect to potential hazards to aviation, the applicant would notify the FAA in advance of construction (APM LU-1). Additionally, the applicant will comply with all FAA requirements upon construction of the SNSA (MM HAZ-2) which would ensure that the EITP does not interfere with proposed navigational facilities and flight paths.

CEQA Significance Determinations

IMPACT HAZ-1: Create Hazards to the Public or the Environment through Routine Transport, Use, or Disposal of Hazardous Materials
Less than significant with mitigation

During construction of the EITP, hazards to the public or the environment might be caused by the transport, use, or disposal of hazardous materials including (but not limited to) gasoline, diesel fuel, oil, paints, chemicals, waste oils, and construction waste. The applicant's Hazardous Materials and Waste Handling Management ~~plan~~ Plan (APM HAZ-2) would facilitate safe and environmentally sound handling of hazardous materials and wastes to prevent releases. Equipment would be inspected daily for potential leakage or failures, and fuel tanks would also be placed within a secondary containment area or an area where the ground was covered with an impermeable liner to ensure that any accidental spillage would not escape to the environment. APM HAZ-2 would also ensure that waste would be handled and disposed of in a landfill facility authorized to accept treated wood pole waste in accordance with California Health and Safety Code 25143.1.4(b).

During operation and maintenance of the EITP, hazards to the public or the environment also could be caused by the improper transport, storage, use or disposal of hazardous materials. The applicant's SPCC Plan and Hazardous Materials Business Plan (APM HAZ-5) would also help ensure that the applicant would minimize, avoid, and/or clean up spills of hazardous materials. Implementation of a Worker Health and Safety Plan (MM HAZ-1) would help protect the workforce during construction and operation of the EITP. In addition, MM HAZ-4 would require that project-related debris be tested prior to disposal; MM HAZ-5 would require that potential backfill material be proven contaminant-free; and MM HAZ-6 would ensure that the applicant obtain an EPA Identification Number and receive authorization from a local CUPA, if necessary. Therefore, impacts would be less than significant with mitigation.

IMPACT HAZ-2: Create Hazards through Accidental Release of Hazardous Materials into the Environment
Less than significant with mitigation

The proposed project would not traverse any known contaminated sites, but would traverse and be in close proximity to fuel product pipelines where there could be soil contamination. During construction and operation of the EITP, contamination of soils and/or mobilization of contaminated soils could occur. Prior to commencement of any grading activities, the applicant would be required by law to use an Underground Service Alert organization to identify the location of underground utilities and pipelines. In addition, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1), and a representative for the pipelines would be present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). The applicant's Hazardous Materials and Waste Handling Management Program (APM HAZ-2) would include procedures for proper storage, handling, and disposal of hazardous wastes. In addition, the applicant's Soil Management Plan (APM HAZ-3) would provide guidance for the proper handling, onsite management, and disposal of impacted soil. Implementation of a Worker Health and Safety Plan (MM HAZ-1) would help protect the workforce during construction and operation of the EITP. In addition, MM HAZ-4 would require that project-related debris be tested prior to disposal; MM HAZ-5 would require that potential backfill material be proven contaminant-free; and MM HAZ-6 would require that the applicant obtain an EPA Identification Number and receive authorization from a local CUPA, if necessary. Therefore, impacts would be less than significant with mitigation.

IMPACT HAZ-3: Expose the Public or Environment to Existing Contaminated Soil or Groundwater
Less than significant with~~out~~ mitigation

As discussed in Section 3.7.1.1, the proposed EITP components may encounter undocumented hazardous waste sites during construction. However, the applicant has committed to conducting a Phase 1 ~~ESA~~Environmental Site Assessment (APM HAZ-1) to identify recognized environmental conditions in the vicinity of the ROW prior to the start of construction to ensure that contaminated areas would be avoided. In addition, MM HAZ-3 would require the

applicant to submit a work plan to the appropriate agency for its review and approval prior to initiating any remediation work, and MM HAZ-5 would require that potential backfill material (if used) be properly sampled and determined to be contaminant-free. Therefore, impacts would be less than significant without mitigation.

IMPACT HAZ-4: Increase Safety Hazards for People Residing or Working within 2 Miles of a Public Airport or Public Use Airport
Less than significant with mitigation

The only existing airport within the project area is the Jean Airport, 5 miles away; therefore, there would be no impact associated with existing airports within 2 miles of the proposed project. The proposed boundary for the SNSA would be within 0.5 miles (2,640 feet) north of MP 26 of the EITP transmission line; however, as discussed above, ~~the EIS for the SNSA is currently in progress and is not expected to be completed until the fourth quarter of 2012~~ the SNSA has been placed indefinitely on hold. ~~Therefore, it is not possible to state conclusively whether the EITP would impact the future SNSA.~~ Regardless, the applicant has included APM LU-1, which states that they would notify the FAA as far in advance of construction as possible. To further reduce potential hazards associated with the future airport, the applicant has requested Hazard/No Hazard Determinations for structures within 20,000 feet of the airport boundary and will implement MM HAZ-2, which requires that the applicant ~~consult~~ comply with ~~the~~ all FAA ~~regarding final project design and whether a Hazard/No Hazard Determination is required~~ requirements upon construction of the SNSA. With implementation of MM HAZ-2, impacts from increased safety hazards for people residing or working within 2 miles of an airport would be reduced to less than significant. For further discussion of impacts associated with the SNSA, see Chapter 5, "Cumulative Scenario and Impacts."

IMPACT HAZ-5: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan
Less than significant without mitigation

During construction and operation, activities that could affect traffic and emergency routes include equipment delivery necessitating lane closures and stringing lines across major and local roadways. If lane closures were necessary for construction or maintenance of the EITP, the applicant would have to obtain an encroachment permit from the appropriate authorities (CalTrans or NDOT) for work that would be performed within roadways and railroad ROWs (APM TRA-1). A Traffic Management and Control Plan (APM TRA-2) would specify how the flow of traffic would be controlled and how emergency situations would be addressed. The applicant would also implement BMPs, such as use of flaggers, identification of detours, and appropriate communications with stakeholders. Therefore, impacts on emergency response plans and evacuation routes would be less than significant without mitigation.

IMPACT HAZ-6: Expose People or Structures to an Increased Risk of Wildland Fires
Less than significant without mitigation

During construction and operation of the EITP (all components), fires might be caused by combustion of native materials due to smoking, refueling, or operating vehicles and other equipment off roadways; welding; electrical arcing; or a fallen conductor. The applicant's Fire Management Plan (APM HAZ-4) establishes standards and practices that would minimize the risk of fire and, in the event of fire, provide for immediate suppression and notification. Therefore, potential impacts from wildland fires would be less than significant without mitigation.

NO IMPACT: Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste Within One-Quarter Mile of an Existing or Proposed School. There are no schools within 0.25 miles of the EITP transmission lines, substations, or telecommunications improvements in California or Nevada. Therefore, no impacts on existing or proposed schools are anticipated from the construction, operations, or maintenance of the EITP.

3.7.3.6 No Project / No Action Alternative

The No Project Alternative assumes that existing transmission lines and power plants would continue to operate. Impacts currently caused by these facilities on the existing environment would not change, so no new hazards or health safety impacts would occur from continuing operation of the existing transmission lines and power plants. The No Project Alternative would have no impact on health and safety, schools, emergency response/evacuation routes, airports, or the risk of wildfires.

3.7.3.7 Transmission Alternative Route A

Transmission Alternative Route A would eliminate several transmission crossovers near the Eldorado Substation by using a new ROW adjacent to the LADWP AC transmission corridor near McCullough Pass. This route would be shorter than the segment of the proposed alignment it replaces and would require fewer transmission structures. In addition, this route would cross fewer intermittent streams.

Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, but would be incrementally less because this alternative is shorter than the proposed project and thereby construction time would be shorter. This incrementally decreases the risk of improper management of hazardous materials or of a spill. With the implementation of MM HAZ-1, MM HAZ-3, MM HAZ-4, MM HAZ-5, and MM HAZ-6, impacts would be less than significant. The potential to encounter contaminated soil would also incrementally decrease and the impact, if contaminated soils were encountered, would remain short term, minor, and less than significant. As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.8 Transmission Alternative Route B

Transmission Alternative Route B would involve deviating from the proposed route near the Eldorado Substation. Several of ~~these~~the existing overhead utility lines might have to be modified or relocated to accommodate this alternative. Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, but would be incrementally greater because this route is longer than the proposed project. With the implementation of MM HAZ-1, MM HAZ-3, MM HAZ-4, MM HAZ-5, and MM HAZ-6, impacts would be less than significant. The potential to encounter contaminated soil would incrementally increase and the impact, if contaminated soils were encountered, would be short term, minor, and less than significant. As discussed above, there would be no impacts on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.9 Transmission Alternative Route C

Transmission Alternative Route C would avoid crossing Ivanpah Dry Lake. Impact on intermittent streams would be reduced due to fewer crossings, and the likelihood of impacting water resources would be reduced. However, Alternative C would be closer to the proposed SNSA than would the proposed project, which could result in project components being more likely to present obstruction and/or hazards to aviation than the proposed project; however, with the implementation of MM HAZ-2, this impact would likely be reduced to less than significant. This alternative could have a greater potential for ground-disturbing activities such as construction of access and spur roads and towers, additional pulling and tensioning sites, and construction within 5.2 miles of new ROWs.

Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, but would be incrementally greater because this route is longer than the proposed project. With the implementation of MM HAZ-1, MM HAZ-3, MM HAZ-4, MM HAZ-5, and MM HAZ-6, impacts would be less than significant. The potential to encounter contaminated soil would incrementally increase,

and the impact, if contaminated soils were encountered, would be short term, minor, and less than significant. As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.10 Transmission Alternative Route D and Subalternative E

Transmission Alternative Route D and Subalternative E would follow to the extent feasible the existing LADWP Marketplace–Adelanto 500-kV transmission line ROW, thus reducing the overall transmission footprint across the Ivanpah Dry Lake. Alternative D and Subalternative E would also move the transmission line away from the Desert Oasis Apartment complex and be further away from the proposed SNSA than would the proposed project and Alternative C, which could result in project components being less likely to present obstructions and/or hazards to aviation than the proposed project or Alternative C. The length of the transmission line would be shorter than the proposed project; however, new access roads and new ROWs would be required.

Similar to the proposed project, impacts associated with the improper management or release of hazardous materials would be short term, minor, and localized, and would be equivalent to those of the proposed project. Because this alternative is shorter, it would incrementally decrease the risk of improper management of hazardous materials or of a spill, although impacts would be similar to the proposed project. With the implementation of MM HAZ-1, MM HAZ-3, MM HAZ-4, MM HAZ-5, and MM HAZ-6, impacts would be less than significant. The potential to encounter contaminated soil would also incrementally decrease and the impact, if contaminated soils were encountered, would remain short term, minor, and less than significant. As discussed above, there would be no impacts on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.11 Telecommunication Alternative (Golf Course)

The Golf Course Telecommunication Alternative would include installation of overhead and underground telecommunications lines only; no microwave towers would be installed. This telecommunication line would be 20 miles longer than the telecommunication line of the proposed project, which would increase the risk of accidents associated with hazardous materials due to the increased length of the construction period. Removal of the treated wood poles, trenching and grading activities for access roads, and installation of additional LSTs or TSPs would cause greater ground disturbance than would the telecommunication line proposed for the project. With incorporation of APMs HAZ-1 through HAZ–5 and MM HAZ-1, MM HAZ-3, MM HAZ-4, MM HAZ-5, and MM HAZ-6, there would be a less than significant impact.

The Golf Course Telecommunication Alternative might cross over a closed land disposal site (Biogen Plant) that is buried underneath the Primm Valley Golf Course near MP 6 of the telecommunication line, and might also cross over a possible underground storage tank at the southeast quadrant of the I-15/Yates Well Road interchange in Nipton, California, near MP 4 of the telecommunication line. This alternative could result in moderate, adverse direct impacts due to the potential of exposing potential contamination along this route.

As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.3.12 Telecommunication Alternative (Mountain Pass)

The Mountain Pass Telecommunication Alternative includes installation of overhead and underground telecommunications lines only; no microwave towers would be installed. The telecommunication line would be 20 miles longer than the line for the proposed project. The increased length of this alternative would increase the risk of accidents associated with the management of hazardous materials because the construction period would be longer. Removal of the treated wood poles, trenching and grading activities for access roads, and installation of additional

LSTs or TSPs would cause greater ground disturbance than would the proposed telecommunication route for the project. APMs HAZ-1 through HAZ-5 would be incorporated to reduce impacts. With the implementation of MM HAZ-1, MM HAZ-3, MM HAZ-4, MM HAZ-5, and MM HAZ-6, there would be a less than significant impact of potential risks associated with improper management of (or accidental release of) hazardous material, but there would be incrementally greater potential impacts than under the proposed project.

The Mountain Pass Telecommunication Alternative would cross through Molycorp Mine, which is listed as a hazardous site (DTSC 2009). Molycorp is a large active lanthanide mining and milling operation; however, this portion of the telecommunication line would be an overhead wire. Construction through this type of facility would increase the potential for exposing workers to hazardous materials or wastes. Project workers would have to comply with the health and safety requirements of the mining facility and those of the applicant's Health and Safety Plan (MM HAZ-1). In addition, any remedial work would be approved by the appropriate agency according to MM HAZ-3. Implementation of ~~this~~ these mitigation measures, in addition to MM HAZ-4, MM HAZ-5, and MM HAZ-6, would reduce the risks associated with this impact such that the impact would be minor, short term, and less than significant with mitigation, although incrementally greater than the proposed project.

As discussed above, there would be no impact on schools. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.

3.7.4 Mitigation Measures

MM HAZ-1: Worker Health and Safety and Environmental Training and Monitoring Program. Prior to construction, the applicant will conduct a worker safety and environmental training program. As part of the program, the applicant will develop and implement a Health and Safety Plan. The Health and Safety Plan should address all potential situations that workers could encounter during construction and maintenance, including safety issues that may be unique to any of the alternatives. The Health and Safety Plan, at minimum, must require that first aid kits be stored in each construction vehicle and that a worker trained in first aid be included in each work group. The purpose and goal of the worker safety and environmental training will be to communicate project-related environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and BMPs, to all field and construction personnel prior to the start of construction. Training will also encompass environmental training related to road designations, speed limits, and restrictions on camping within the surrounding Boulder City Conservation Easement to ensure compatibility with neighboring land uses, promote "good neighbor" policies, and institute best management practices for construction. SCE will also conduct health and safety training for Operation and Maintenance activities.

~~**MM HAZ-2: Consultation with FAA Regarding Final Project Design and Possible Hazard/No Hazard Determination.** Prior to final project design and as far in advance as possible, the applicant will initiate consultation with the FAA regarding potential requirements due to the proximity of the EITP to the proposed SNSA. Depending upon the FAA's recommendations, the applicant may be required to obtain a Hazard/No Hazard Determination. The FAA may also require lighting of EITP structures or make additional recommendations regarding safety. The applicant will submit documentation of this consultation to the CPUC and BLM.~~

MM HAZ-2: Comply with FAA Requirements Upon Construction of the SNSA. The applicant will comply with all FAA requirements upon construction of the SNSA.

MM HAZ-3: Agency Coordination and Approvals. Before initiating the Phase I Environmental Site Assessment, site investigation under the Soil Management Plan, and/or any remediation work, the applicant will develop and submit a work plan to the appropriate federal, state, and local regulatory authority to oversee hazardous waste investigations or cleanups. No work will begin without approval of the appropriate regulatory authorities. The applicant will submit results of all analytical reports to the appropriate regulatory authorities in a report that summarizes the sampling results in reference to regulatory standards. The applicant will submit all closure certification or remediation approval reports to the appropriate regulatory authorities.

MM HAZ-4: Disposal of Demolition Materials. All debris generated during project-related demolition of structures, buildings, asphalt, or concrete-paved surface areas must be tested for the presence of hazardous chemicals, mercury, asbestos, and any other materials that may be deemed hazardous before disposal. The applicant will ensure that the materials are properly disposed of depending on the sampling results.

MM HAZ-5: Backfill Material. If backfill material is used, it will be sampled and determined to be contaminant-free before it is used to fill excavations.

MM HAZ-6: EPA Identification Number. If it is determined that hazardous waste will be generated during construction, the applicant will obtain an EPA Identification Number before construction begins. Before construction begins, the applicant will also determine whether the treatment or the handling or the storing of hazardous materials will require authorization of the local Certified Unified Program Agency (CUPA). If necessary, the applicant must receive authorization from the local CUPA before construction begins.

3.7.5 Whole of the Action / Cumulative Action

Information on hazards, health, and safety related to the ISEGS project is summarized below. The setting for the ISEGS project is described, followed by methodologies used and summaries of the impact conclusions presented in the CEC's FSA, Addendum, and Final Decision and the BLM's Final EIS. Required mitigation measures and conditions of certification are listed.

~~Below is a brief summary of information related to hazards, health, and safety in the ISEGS Final Staff Assessment / Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

ISEGS project components and operational features that were evaluated for hazards and health and safety are:

- A power plant that requires process cooling water
- Stacks that would emit fumes
- Solar panels that would use natural gas for operation
- Power plants that would use natural gas for operation
- Safety measures that would use natural gas for operation
- Site security cameras
- Driver certifications for transport of hazardous materials and site access
- Safety concern related to glare
- Safety concerns related to proposed airports

3.7.5.1 Hazardous Materials Management

The Hazardous Materials Management Section of the ISEGS FSA/DEIS and the BLM's FEIS includes regulations related to worker and public protection from accidental releases of hazardous materials.

ISEGS Setting

~~ISEGS evaluated several setting~~ Several characteristics of the ISEGS setting were analyzed related to the ability of accidental release of hazardous materials to affect the public, including meteorological conditions, terrain, and location of population centers and sensitive receptors relative to the project.

Meteorological conditions including wind speed, wind direction, and air temperature affect both the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. The location of elevated terrain is often an important factor in assessing potential exposure. The topography of the ISEGS site is essentially flat but sloping from west to east. The stack height is not of concern for the project. No sensitive receptors are located within 6 miles of the ISEGS project vicinity, and the nearest residence is 5 miles from the ISEGS site.

Applicable Laws and Regulations

The California laws, ordinances, and regulations that apply to EITP apply to the ISEGS project as well.

ISEGS Methodology

CEC FSA Methodology

In the combined CEC/BLM ~~and CEC staff (Staff)~~ISEGS FSA/DEIS, the CEC examined the plausible potential spills of hazardous materials that are to be used, handled, stored, or transported at the project site, and evaluated the potential impacts on public health from accidental releases/loss of containment incidents of these hazardous materials. The worst-case scenario was evaluated. Both engineering and administrative controls for hazardous material use were evaluated. Engineering controls are physical or mechanical systems such as storage tanks or automatic shut-off valves that can prevent a spill of hazardous material from occurring, or that can limit the spill to a small amount or confine it to a small area. Administrative controls are rules and procedures that workers must follow to help either prevent accidents or keep them small if they do occur. Both engineering and administrative controls can act as either methods of prevention or methods of response and minimization. In both cases, the goal is to prevent a spill from moving off site and harming the public. The list of the known hazardous materials that would be used for the ISEGS project was categorized into small quantity and large quantity hazardous materials. Staff considered two additional potential impacts: (1) nearby school operations and (2) transportation of hazardous materials. No schools are located within 30 miles of ISEGS site, so the FSA/DEIS did not analyze impacts to schools. However, the impacts of transporting hazardous materials were analyzed in the Operation Impacts and Mitigation section.

ISEGS provided maximum anticipated volumes of hazardous materials anticipated to be used on the project. EITP did not evaluate the worst-case scenario. The EITP does not discuss the maximum anticipated volumes and the type and location of storage of hazardous materials.

BLM FEIS Methodology

The BLM's ISEGS FEIS employs the same methodology as the combined CEC/BLM FSA/DEIS described above.

ISEGS Impacts

CEC FSA Impact Conclusions

Construction Impacts

Hazardous materials would be transported, handled, used, and stored on the ISEGS site. Small quantity hazardous materials used during the construction phase of the project would include paint, cleaners, solvents, gasoline, diesel fuel, motor oil, welding gases, and lubricants. Potential impacts would include spills due to accidents, failure of hazardous containment tanks due to seismic activity, and site security issues (unauthorized access, vandalism, or domestic/foreign terrorist attacks). The potential for accidents resulting in the release of hazardous materials would be reduced by the implementation of a Safety Management

Program, which would include both engineering and administrative controls. In addition, ISEGS would develop and implement a Worker Health and Safety Program; designate and provide a project Health and Safety Officer; prepare and implement an HMBP, which would incorporate state requirements for the handling of hazardous materials; prepare and implement an SPCC Plan; and implement site security measures such as perimeter fencing and breach detectors, alarms, and site access procedures for employees and vendors. The ISEGS FSA/DEIS concluded that there would be no significant impact from construction-generated hazardous materials with the use of BMPs and compliance with all laws, ordinances, regulations, and standards.

Operational Impacts

During operations, hazardous chemicals such as cleaning agents, lubrication oil, sulfuric acid, sodium hydroxide, ammonium hydroxide, diesel fuel, and other chemicals would be used and stored on site but would be a limited off-site hazard due to their small quantities, low volatility, and/or low toxicity. In addition, the ISEGS project would use natural gas to heat a partial load steam boiler when solar conditions were insufficient. The natural gas would be used in significant quantities and is considered a large quantity hazardous material as described under the above methodology section. The natural gas would not be stored on site, but would be delivered via an existing underground pipeline that runs within a half-mile of the northern perimeter of the ISEGS site.

Natural gas poses an explosion and fire risk because of its flammability. The risk of a fire and/or explosion on site would be reduced to insignificant levels through adherence to applicable codes including the use of double block and bleed valves for gas shut-off and automated combustion controls. In addition, the applicant's Safety Management Plan would reduce the potential for injuries and accidents related to the use of equipment and hazardous materials.

The EITP would have some fire risks associated with transmission lines, unmaintained vegetation clearances around structures, and use of fuel for the substation equipment. However, no natural gas from underground pipelines would be used for EITP construction and/or operation.

Decommissioning Impacts

The ISEGS project would be decommissioned at the end of its 50-year life by removing all facilities to 3 feet below grade, restoring original contours, and revegetating the site. The requirements for handling of hazardous materials remain in effect until such materials are removed from the site. If the site were to be abandoned, and if there were any unacceptable risk to the public, emergency action could be taken and it would be paid for by a performance bond required from the applicant (LAND-1).

The EITP discussion does not cover decommissioning and there is no requirement for a performance bond for decommissioning of the site.

BLM FEIS Impact Conclusions

Similar to the CEC's FSA conclusions, the BLM concludes that impacts would be reduced to less than significant with the implementation of the mitigation measures listed below.

ISEGS Conditions of Certification / Mitigation Measures

~~Mitigation measures related to hazardous materials used for ISEGS are as follows:~~

CEC Conditions of Certification

The conditions of certification listed below were required in the combined CEC/BLM ISEGS FSA/DEIS.

HAZ-1 requires that the applicant use only hazardous materials listed in Hazardous Materials Appendix A, and not use hazardous materials in greater quantities than those associated with materials identified by chemical name in

Hazardous Materials Appendix A, unless approved in advance by the BLM's Authorized Officer and Compliance Project Manager (CPM).

HAZ-2 requires the applicant to develop and implement an HMBP to notify local emergency response services of the amounts and locations of hazardous materials associated with the ISEGS project.

HAZ-3 requires the applicant to develop and implement a Safety Management Plan for the delivery of liquid hazardous materials.

HAZ-4 requires the applicant to develop and implement a site-specific Construction Site Security Plan applicable to all construction phases.

HAZ-5 requires that the applicant to develop and implement a site-specific Operation Security Plan addressing physical site security and hazardous materials storage.

HAZ-6 requires that the applicant comply with federal and state laws and regulations, including the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) regarding any toxic substances that are used, generated, or stored on the ROW or on facilities authorized under this ROW grant.

BLM Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the CEC/BLM FSA/DEIS. However, the summary of the FEIS indicates that only HAZ-6 is a BLM requirement. Other mitigation measures are imposed by the CEC.

3.7.5.2 Public Health and Safety

The Public Health and Safety Section of the ISEGS FSA/DEIS evaluated potential effects on the public from emissions of toxic air contaminants. The public health impacts related to emissions is further discussed in Section 3.3, "Air Quality," of this EITP EIR/EIS.

ISEGS Setting

The natural gas pipeline proposed for construction for the ISEGS project would be approximately 5.3 miles long, running from the Kern River Gas Transmission Company pipeline through Ivanpah 3 and 2 and ending at Ivanpah 1. The nearest residence is approximately 5 miles from the site in the community of Primm, Nevada. According to the Application for Certification, there are no sensitive receptors within 6 miles of the ISEGS project site. There is a house trailer used as a residence near the southeast quadrant of the I-15/Yates Well Road interchange.

The ISEGS would have three exhaust stacks associated with the start-up boilers, one for each plant (Ivanpah 1, 2, and 3). The stack heights would be 130 feet (Table 5.1 D-2 in BSE 2007a). The location of elevated terrain (above the stack height) is important in assessing potential exposure, as an emission plume may impact high elevations before impacting lower elevations. The proposed site is within the jurisdiction of the Mojave Desert Air Quality Management District.

Additional setting characteristics that were evaluated included meteorology, terrain, and existing public health concerns. No existing health issues were reported within a 6-mile radius of the ISEGS project.

Applicable Laws and Regulations

The California laws, ordinances, and regulations that apply to the EITP apply to the ISEGS project.

ISEGS Methodology

CEC FSA Methodology

The Public Health and Safety section of the ISEGS FSA/DEIS discusses toxic emissions to which the public could be exposed during project construction, routine operation, and closure/decommissioning. Potential emissions were identified and then quantified by conducting a "worst case" analysis to determine acute (short-term; e.g., 1-hour) exposure non-cancer health effects, chronic (long-term) non-cancer health effects, and cancer risk.

Construction of the ~~three power plants of~~ ISEGS project is anticipated to take place over 4840 months~~, with each phase taking about 24 months to complete and with 12 months of overlap between the construction of any of the two power plants at one time (Section 2.2.15 in BSE 2007a). As noted earlier~~. In general, assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a significantly longer time, typically from eight to 70 years.

BLM FEIS Methodology

The BLM's ISEGS FEIS employs the same methodology as the combined CEC/BLM FSA/DEIS described above.

ISEGS Impacts

CEC FSA Impact Conclusions

Construction Impacts

Risks to public health during construction of ISEGS would include potential exposure to toxic substances such as diesel fumes from gas-powered equipment and contact with contaminated water and/or soil from excavation, grading, and earth-moving activities. A Phase I ~~ESA~~Environmental Site Assessment conducted for this site in 2007 identified no "Recognized Environmental Conditions" according to the ASTM definition, and the report concluded that the ISEGS project site has never been used for commercial or industrial activities (Appendix 5.14A in BSE 2007a). If unexpected contamination were to be discovered during ground-disturbing activities, proposed Waste Management Conditions of Certification (COCs) Waste-1 and Waste-2 mandate a professional geologist (PG) or professional engineer (PE) be available during excavation and grading to ensure proper handling and disposal of contaminated soil.

To minimize particulate matter in the air, which could be inhaled or ingested, ISEGS will implement extensive fugitive dust control measures in accordance with Air Quality COC AQ-SC-3 and AQ-SC-7. In accordance with AQ-SC-5 and in order to further mitigate potential impacts from particulate emissions during the operation of diesel-powered construction equipment, CEC staff recommends the use of ultra-low sulfur diesel fuel and Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines. These impacts are discussed in greater detail in Section 3.3, "Air Quality and Greenhouse Gases," of this EITP FEIR/EIS.

A Phase 1 ~~ESA~~Environmental Site Assessment has not been conducted for the EITP; however, the applicant has proposed to conduct a Phase 1 prior to construction.

Operational Impacts

No short- or long-term adverse health effects are expected from emissions during the operation of the ISEGS project. Total worst-case individual cancer risk was calculated by the applicant to be 0.065 in 1 million at the location of maximum impact.

Decommissioning Impacts

Staff concluded that public-health–related impacts from closure and decommissioning of the ISEGS would be insignificant.

BLM FEIS Impact Conclusions

Similar to the CEC's conclusions in the FSA, the BLM concludes that there would be no impacts resulting from the potential public health risk of toxic emissions.

ISEGS Conditions of Certification / Mitigation Measures

No mitigation measures or conditions are proposed. ~~Staff~~The CEC and the BLM analyzed the potential public health risks of toxic emissions resulting from the ISEGS project and determined that there would be no significant health risks to any members of the public including sensitive receptors (for example, infants and the elderly).

3.7.5.3 Transmission Line Safety and Nuisance

ISEGS Setting

~~The total area required for the three facilities (Ivanpah 1, 2, and 3) that would constitute the proposed ISEGS would be 4,073 acres of BLM land. Each of these facilities would consist of a solar field and related electric-power–generating equipment from which the generated power would be interconnected to SCE's power grid via a new 220/115- kV SCE substation (Ivanpah Substation) to be located between Ivanpah 1 and Ivanpah 2. The connection to the SCE grid would be through SCE's existing 115-kV line that would be upgraded to 230 kV for 36 miles between the new Ivanpah Substation and the existing Eldorado Substation in Nevada. This transmission line passes through the site on a northeast-southwest ROW. The site is in an uninhabited open space with transmission line corridors.~~

~~Methodology~~

~~The Transmission Line Safety and Nuisance Section of the ISEGS FSA/DEIS evaluated potential effects associated with proposed transmission lines including aviation safety, interference with radio-frequency communication, audible noise, fire hazards, hazardous shocks, nuisance shocks, and EMF exposure.~~

The total area required for the three facilities (Ivanpah 1, 2, and 3) that would constitute the proposed ISEGS would be 3,564 acres of BLM land. Each of these facilities would consist of a solar field and related electric-power–generating equipment from which the generated power would be interconnected to SCE's power grid via a new 220/115- kV SCE substation (Ivanpah Substation) to be located between Ivanpah 1 and Ivanpah 2. The connection to the SCE grid would be through the upgraded Eldorado–Ivanpah Transmission Line (discussed above under Section 3.7.3.5, "Proposed Project / Proposed Action").

Applicable Laws and Regulations

The California laws, ordinances, and regulations that apply to the EITP apply to the ISEGS. Regulations related to noise, such as corona noise, are discussed in Section 3.10, "Noise," of this EITP FEIR/FEIS.

ISEGS Methodology

CEC FSA Methodology

The CEC analyzed whether the construction and operation of the transmission line would comply with the listed design-related laws and regulations and industry practices. These laws, regulations, and practices have been established to maintain impacts below levels of potential significance. Thus, if the transmission line would comply with applicable laws and regulations, impacts related to transmission line safety and nuisance would be less than significant.

BLM FEIS Methodology

The BLM's ISEGS FEIS employs the same methodology as the combined CEC/BLM FSA/DEIS described above.

ISEGS Impacts

CEC FSA Impact Conclusions

Aviation Safety

No aviation impacts are anticipated from the proposed ISEGS project because structures would not be located within the runway area, and transmission structures would be only 85 feet in height; which is well below the 200-foot height limit that requires review by FAA. The FAA has determined that even the tallest structures of the proposed ISEGS, the 459-foot-high solar power towers, would not pose a hazard to aviation. However, this determination may be in conflict with the FAA requirement to review structures over 200 feet in height.

Interference with Radio-Frequency Communication

Transmission-line–related radio-frequency interference is an indirect effect of line operation and is produced by the physical interactions of line electric fields. The degree of radio-frequency communication interference is usually related to the magnitude of involved electric fields and the proximity of the line to inhabited areas. No radio-frequency interference is anticipated since the transmission lines associated with the ISEGS project would not be located near any inhabited areas.

Audible Noise

Audible noise results from the action of the electric field at the surface of the line conductor and is usually perceived as a characteristic crackling, frying, humming, or hissing sound. Substantial audible noise is not expected from lines less than 345 kV, such as proposed for the ISEGS project.

Fire Hazards

Fire hazards could be caused by sparks from conductors of overhead lines or from direct contact with combustible objects. Fire risks would be minimized by adherence to clearance requirements of GO-95. In addition, ~~Staff would require~~ the ISEGS owner would be required to keep the ROW free of combustible material (COC TLSN-3) and would require an independent inspection for the first five years of plant operation to verify compliance with this condition.

Hazardous Shocks

Hazardous shocks may occur from contact with high-voltage overhead or underground transmission lines. To minimize the risk of shocks, the project would adhere to the clearance requirements of GO-95 safety measures for energized lines to maintain clearance and a safe distance from the public. The Staff would also require ISEGS to comply with COC TLSN-1, which requires verification from a California-registered electrical engineer affirming that the lines would be constructed according to the requirements stated in the condition.

Nuisance Shocks

Nuisance shocks may also occur from human contact from the energized lines. Shocks may be minimized through standard industry grounding practices specified in the National Electrical Safety Code and joint guidelines of the American National Standards Institute and Institute of Electrical and Electronics Engineers. The Staff would require ISEGS compliance with COC TLSN-4 to ensure such grounding for ISEGS.

Electric and Magnetic Field Exposure

As described ~~earlier~~ above, electric and magnetic fields occur together whenever electricity flows, and exposure to them together is generally referred to as "EMF exposure." Human health impacts of EMF exposure from transmission have been neither established nor ruled out, and there are no health-based federal regulations or industry codes specifying environmental limits on the strengths of fields from power lines. COC TLSN-2 is intended to validate the ISEGS applicant's assumed reduction efficiency.

The EITP does not address interference with radio-frequency communication, audible noise, or shocks within the hazards, health, and safety section.

Operational Impacts

No impacts were identified for operation of the transmission lines associated with the ISEGS project.

Decommissioning Impacts

Removal of the ISEGS transmission structures and tie-in lines would eliminate or reduce EMF exposure, aviation safety, and noise as well as reduce or eliminate the risk of electric shocks and fire hazards.

BLM FEIS Impact Conclusions

The BLM concludes similar to the CEC's FSA that impacts would be reduced to less than significant with the implementation of the mitigation measures listed below.

ISEGS Conditions of Certification and Mitigation Measures

CEC FSA Conditions of Certification

The ISEGS FSA/DEIS recommends that the conditions of certification related to transmission line safety and nuisance described below be required by the CEC and the BLM if the project is approved.

TLSN-1 requires that the applicant construct the proposed transmission lines according to the requirements of CPUC's GO-95, GO-52, GO-131-D, Title 8, and Group 2 High Voltage Electrical Safety Orders Sections 2700 through 297 of the California Code of Regulations, and SCE's EMF-reduction guidelines.

TLSN-2 requires that the applicant use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity before and after energizing according to the American National Institute Standards/Institute of Electrical and Electronics Engineers standard procedures. These measurements must be completed no later than 6 months after the start of operations.

TLSN-3 requires that the ROW of the proposed transmission line be kept free of combustible material as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.

TLSN-4 requires that all permanent metallic objects within the ROW of lines related to the ISEGS project be grounded according to industry standards regardless of ownership.

BLM FEIS Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the DEIS. However, the summary of the FEIS indicates that all mitigation measures are imposed by the CEC.

3.7.5.4 Waste Management

The Waste Management Section of the CEC/BLM ISEGS FSA/DEIS and the BLM FEIS evaluated issues associated with wastes generated from construction and operation of the project and included non-hazardous and hazardous waste, quantities, and waste management that would reduce health and safety risks for the public and environment from disposal of hazardous wastes.

The EITP Waste Management is discussed in Section 3.11, "Public Services and Utilities," of this EIR/EIS.

Setting

~~The ISEGS project would cause permanent disturbance of about 3,713 acres and temporary disturbance of 321 acres. Including the existing transmission line corridor of about 39 acres within the Construction Logistics Area, ISEGS would use about 4,073 acres (6.4 square miles) of federal land managed by BLM (CH2ML 2009f).~~

Raw water for the project would be supplied by two groundwater wells northwest of Ivanpah 1 and within the Construction Logistics Area. The water would be treated and used as boiler make-up water and to wash the heliostats.

A septic system for sanitary wastewater would be located at the administration building/operations and maintenance area.

Process wastewater from all equipment, including the boilers and water treatment equipment, would be recycled. If necessary, a small filter/purification system would be used to treat project groundwater and provide potable water at the administration building. Any reject streams from water treatment would be trucked off site for treatment or disposal at either a Class I or a Class II waste facility, as appropriate.

All non-hazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed in a Class III solid waste disposal facility. Hazardous wastes would be recycled to the extent possible and disposed in either a Class I or a Class II waste facility, as appropriate.

The EITP discusses disposal of waste and sewer services under the Public Services Section (3.11), and Water Quality is discussed in Section 3.8.

Applicable Laws and Regulations

The same California laws, ordinances, and regulations that apply to the EITP apply to the ISEGS project. Regulations related to non-hazardous waste are discussed in Section 3.11, "Public Services and Utilities," of this EIR/EIS.

Methodology

CEC FSA Methodology

The waste management analysis for ISEGS addressed: (1) existing project site conditions and the potential for contamination associated with prior activities on or near the project site and (2) the impacts from the generation and management of wastes during project construction and operation.

BLM FSA Methodology

The BLM's ISEGS FEIS employs the same methodology as the combined CEC/BLM FSA/DEIS described above.

ISEGS Impacts

CEC FSA/DEIS Impacts

Construction Impacts

Non-hazardous and hazardous wastes in solid and liquid forms would be generated during construction of the ISEGS facilities. There would be approximately 280 tons of non–hazardous solid wastes (scrap wood, concrete, steel/metal, paper, glass, scrap metals, plastic waste, and liquid wastes such as sanitary wastes and wastewater). It is estimated that the 4 tons of hazardous waste from the ISEGS project requiring offsite disposal would occupy less than 10 cubic yards. Prior to construction, the project owner would be required to develop and implement a Construction Waste Management Plan and obtain a unique hazardous waste generator identification number for the site (WASTE-4). The CEC's CPM would also be notified if any enforcement action related to construction waste management were taken

(WASTE-5). In addition, construction activities such as excavation, grading, or trenching might expose contaminated soils and safety precautions for handling; proper disposal would be required (WASTE 1 and WASTE 2).

The EITP discussion does not identify a specific list of hazardous materials, nor quantities of hazardous and non hazardous waste that would be accumulated during construction and operation and decommissioning of the project.

Operational Impacts

During operation, the ISEGS project as originally proposed would generate approximately 240 tons per year of non-hazardous solid wastes from equipment/supplies such as used air filters, resins, sand, and office wastes such as office paper, aluminum cans, plastic, and glass. All non-hazardous wastes would be recycled to the extent possible, and non-recyclable wastes would be regularly transported off site to a local solid waste disposal facility. Prior to operations, the project owner would be required to develop and implement an Operations Waste Management Plan (WASTE-6). Additionally, the Mitigated Ivanpah 3 Alternative would generate less waste than the original ISEGS project; therefore, less than 240 tons would be generated (although the revised amount is unquantified).

Hazardous wastes that might be accumulated during routine project operation are similar to construction wastes. In addition, accidental releases of hazardous materials might require corrective action. The CEC's CPM would also be notified if any enforcement actions related to waste management during operations were taken (WASTE-5). Spill control plans and prevention measures would reduce risks of contamination (WASTE-7).

Decommissioning Impacts

Decommissioning the ISEGS project would produce both hazardous and non-hazardous solid and liquid waste. The ISEGS facility closure plan would document nonhazardous and hazardous waste management practices including the inventorying, management, and disposal of hazardous materials and wastes and permanent disposal of permitted hazardous materials and waste storage units (Compliance-11, -12, and -13). The waste would also be prioritized as follows: (1) materials that reduce waste generation would be used, (2) waste would be reused or recycled, and (3) non-recyclable waste would be treated prior to storage or transport to a permitted disposal facility, and COCs WASTE-4 through WASTE-7 would be applied during decommissioning of the project.

BLM FEIS Impact Conclusions

Similar to the CEC's conclusions in the FSA, the BLM concludes that impacts would be reduced to less than significant with the implementation of the mitigation measures listed below.

ISEGS Conditions of Certification / Mitigation Measures

CEC FSA Conditions of Certification

The ISEGS FSA/DEIS recommends that the conditions of certification related to waste management listed below be required by the CEC and the BLM if the project is approved.

WASTE-1 requires the applicant to provide authority to a PG or PE to oversee any earth-moving activities that have the potential to disturb contaminated soil and impact public health, safety, and the environment.

WASTE-2 requires the applicant to contact BLM's Authorized Officer and the CPM and representatives of the Department of Toxic Substances Control or the Regional Water Quality control Board for guidance and possible oversight of disturbance or encounter of contaminated soils.

WASTE-3 requires the applicant to develop and implement a Construction Waste Management Plan for all construction wastes including projections of frequency, amounts generated, hazard classifications, and management methods.

WASTE-4 requires the applicant to obtain a hazardous waste generator identification number from the U.S. EPA prior to generating any hazardous waste during project construction and operations.

WASTE-5 requires the applicant to notify BLM's Authorized Officer and the CPM for enforcement action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.

WASTE-6 requires the applicant to develop and implement an Operations Waste Management Plan for all wastes generated during operation of the ISEGS project. The plan would include a detailed description of all operations and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications.

WASTE-7 requires that the applicant ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.

BLM FEIS Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the DEIS. However, the summary of the FEIS indicates that all mitigation measures are imposed by the CEC.

3.7.5.5 Worker Safety and Fire Protection

The purpose of the Worker Safety and Fire Protection section of the CEC/BLM ISEGS FSA/DEIS and the BLM FEIS is to assess the worker safety and fire protection measures proposed by the ISEGS applicant and determine whether the applicant has proposed adequate measures to (1) comply with applicable safety laws, ordinances, regulations, and standards ~~(LORS)~~; (2) protect workers during the construction and operation of the facility and protect against fire; and (3) provide adequate emergency response procedures.

Setting

ISEGS includes the construction of a hybrid, combined-cycle, natural-gas–fired power plant and solar thermal generating equipment. For the Power Block, workers would be exposed to hazards typical of construction and operation of a gas-fired simple-cycle facility, while the solar component would present similar construction risks and minimal operational risks to workers.

Fire support services to the site would be under the jurisdiction of the SBCFD. Station 53 is 40 miles from the project site, located at 65 Kingston Circle, Baker, California, and would be the first responder to ISEGS, with a response time of approximately 45 minutes. The response time to the project site with full resources capabilities including those needed for large-scale hazardous materials spills would be 3 to 4 hours. Hazardous materials service is provided out of the SBCFD station in the town of Fontana, Station #78.

The EITP is located in California and Nevada and there are emergency plans for Clark County and Nevada. The police and fire services for EITP are discussed in Section 3.11, "Public Services and Utilities."

Applicable Laws and Regulations

The California laws, ordinances, and regulations that apply to the EITP apply to the ISEGS project. Regulations related to non-hazardous waste are discussed in Section 3.11, "Public Services and Utilities," of this EIR/EIS.

Methodology

CEC FSA Methodology

The Worker Safety and Fire Protection Section of the ISEGS FSA/DEIS assessed, for activities occurring during demolition, construction, operations, and closure and decommissioning, (1) the potential for impacts on the safety of workers and (2) fire prevention/protection, emergency medical response, and hazardous materials spill response.

Worker safety is essentially a ~~LORS~~ compliance matter. If all ~~LORS~~laws and regulations are followed, workers will be adequately protected. Thus, the standard for Staff's review and determination of significant impacts on worker health is whether the applicant has demonstrated adequate knowledge of and commitment to implementation of all pertinent and relevant Cal/OSHA standards. Staff also reviewed and evaluated the onsite fire-fighting systems proposed by the applicant, as well as the time needed for offsite local fire departments to respond to a fire, medical, or hazardous material emergency at the ISEGS site, and determined that the presence of the power plant would cause a significant impact on a local fire department.

BLM FEIS Methodology

The BLM's ISEGS FEIS employs the same methodology as the combined CEC/BLM FSA/DEIS described above.

ISEGS Impacts

CEC FSA/DEIS Impacts

Construction Impacts

During construction of ISEGS there would be the potential for small fires, major structural fires, and wildfires. Fires and explosions of natural gas or other flammable gases or liquids are rare. Accidents, fires, and a worker death have occurred at CEC-certified power plants in the recent past because of the failure to recognize and control safety hazards. Fire protective measures that would help reduce the potential for harm to plant personnel and damage to facilities include removal of all vegetation in the vicinity of the solar power towers, cutting and maintaining vegetation, use of access roads as fire breaks, installation of portable fire extinguishers throughout the site, use of safety procedures, and training. The potential for both work-related and non-work-related heart attacks exists at power plants from work- and non-work-related causes.

The area under the solar arrays would need to be kept free from weeds, and herbicides would be used on a year-round basis. Workers might be exposed and herbicides could contaminate either surface water or groundwater. The ISEGS applicant has indicated that workers would be adequately trained and protected, but has not included precautions against exposure to herbicides.

Prior to construction and operation of ISEGS, all health and safety programs and plans and fire protection measures would be provided (WORKER SAFETY-1 and -2). The applicant/project owner would be required to designate and provide for a project site construction safety supervisor (WORKER SAFETY-3). Staff recommended an Automatic External Defibrillator (AED) be located on site and workers be trained in its use (WORKER SAFETY-5). Proper herbicide storage and application would mitigate potential risks to workers from exposure to herbicides (WORKER SAFETY-6 and BIO-13).

Operational Impacts

Operational impacts would be similar to construction impacts.

Decommissioning Impacts

Upon final facility closure, no workers would remain at the site, except for those necessary to maintain security over any remaining hazardous materials until they were removed from the site. During decommissioning, worker safety would be ensured by the same CAL/OSHA and other regulations requiring safety plans and training as were needed for

construction and operations. Safety plans, training, and an Illness and Injury Prevention Plan would be included as part of the decommissioning plan. Facility fire protection systems would remain functional while hazardous materials remained on site.

BLM FEIS Impact Conclusions

Similar to the CEC's conclusions in the FSA, the BLM concludes that impacts would be reduced to less than significant with the implementation of the mitigation measures listed below.

ISEGS Conditions of Certification / Mitigation Measures

CEC FSA Conditions of Certification

The ISEGS FSA/DEIS recommends that the conditions of certification related to worker safety and fire protection listed below be required by the CEC and the BLM if the project is approved.

WORKER SAFETY-1 requires the applicant to develop and implement a Project Construction Safety and Health Program.

WORKER SAFETY-2 requires the applicant to develop and implement a Project Operations and Maintenance Safety and Health Program.

WORKER SAFETY-3 requires the applicant to provide a site Construction Safety Supervisor.

WORKER SAFETY-5 requires the applicant to keep a portable AED on site during construction of the ISEGS project.

WORKER SAFETY-6 requires the applicant to prepare and implement BMPs for the storage and application of herbicides used to control weeds beneath and around the solar array.

BLM FEIS Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the DEIS. However, the summary of the FEIS indicates that all mitigation measures are imposed by the CEC.

3.7.5.6 Traffic and Transportation Hazards

One of the purposes of the Traffic and Transportation section of the CEC/BLM ISEGS FSA/DEIS and the BLM's FEIS was to assess the possible effect of project operations on local airport flight traffic and potential health and safety effects of project-related glare.

Setting

The setting of the ISEGS project, with respect to air traffic hazards, is similar to the setting of the EITP; however, the ISEGS site is approximately 40,000 feet (7.6 miles) away from the proposed SNSA as opposed to within .5 miles.

Methodology

CEC FSA Methodology

The following impact criteria would apply to traffic hazards in the project area:

- Generate glare that could present a hazard to roadway vehicle traffic or aircraft
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

BLM FEIS Methodology

The BLM's ISEGS FEIS employs the same methodology as the combined CEC/BLM FSA/DEIS.

ISEGS Impacts

CEC FSA Impact Conclusions

Because the project has the potential to result in exposure of aircraft pilots, motorists, and hikers to solar radiation reflected from project heliostats and/or power tower receivers, Conditions of Certification TRANS-3 and TRANS-4 are recommended to ensure that potential glare from the project is minimized to the maximum extent possible and does not pose a health and safety risk. In addition, because the project would place structures greater than 200 feet in height in the vicinity of military flight training routes and air traffic from the proposed SNSA, Condition of Certification TRANS-5 has been proposed to ensure the project complies with FAA recommendations for lighting of tall structures. Condition of Certification TRANS-6 would require notifying the FAA of potential air hazards from turbulence at an altitude of 1,350 feet above the ground surface above the ISEGS site during daylight hours. Conditions of certification referred to herein serve the purpose of both the CEC's conditions of certification for purposes of CEQA and BLM's mitigation measures for purposes of NEPA.

BLM FEIS Impact Conclusions

The BLM's FEIS carries forward the same conclusions as the combined CEC/BLM FSA/DEIS.

ISEGS Conditions of Certification / Mitigation Measures

CEC Conditions of Certification

The ISEGS FSA/DEIS recommends that the conditions of certification related to traffic and transportation hazards listed below be required by the CEC and the BLM if the project is approved.

TRANS-3: HELIOSTAT POSITIONING PLAN AND MONITORING. The project owner will prepare a Heliostat Positioning Plan identifying potential sensitive receptors and heliostat movements that could result in exposure of these receptors to reflected solar radiation. The project owner will also prepare a Heliostat Operation Plan to avoid human health and safety hazards at locations of sensitive receptors according to defined exposure limits and will prepare a monitoring and reporting plan and update it annually for the first five years and then every two years for the life of the project.

TRANS-4: VERIFICATION OF POWER TOWER RECEIVER LUMINANCE AND MONITORING. Upon commencement of commercial operation of each of the three ISEGS power plants and at intervals of every five years thereafter, the project owner will for each power tower evaluate the intensity of luminance of light reflected from all four sides (north, south, east, and west) of the power tower receivers, as measured from the power plant boundary, nearest road, and distances of 200, 500, 1,000, and 1,500 meters from the power tower receivers.

TRANS-5: POWER TOWER LIGHTING. The project owner will ensure that each power tower is marked and lighted according to the recommendations included in the FAA aeronautical study performed for each tower. Additionally, the project owner will submit FAA Form 7460-2 Part II, Notice of Actual Construction or Alteration, to the FAA within five days of completion of construction of the tower to its greatest height.

TRANS-6: FAA NOTIFICATION. Prior to start-up and testing activities of the plant and all related facilities, the project owner will coordinate with the FAA to notify all pilots using the airspace in the vicinity of the ISEGS of potential air hazards from turbulence.

BLM Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the DEIS. However, the summary of the FEIS indicates that only TRANS-4 is a BLM requirement (in addition to a CEC requirement). Other mitigation measures are imposed by the CEC.

3.7.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for hazards, health, and safety were subdivided into different sections but based on similar significance criteria that evaluated the extent to which the proposed projects would expose the project area to different types of hazards or have safety impacts on construction workers. Impacts were evaluated according to each of these criteria in the Hazards, Health, and Safety section of the EITP EIR/EIS and in multiple sections of the ISEGS FSA/EIS and BLM FEIS, including Hazardous Materials Management; Public Health and Safety; Transmission Line Safety and Nuisance; Waste Management; Worker Safety and Fire Protection; and Traffic and Transportation.

Construction and operation of the EITP, if constructed simultaneously with the ISEGS project, could cumulatively increase the probability for hazards such as accidents or spills from improper use, storage, or disposal of oil and/or hazardous materials. However, the impacts would be reduced by ISEGS' implementation of a Safety Management Program, Worker Health and Safety Program, Hazardous Materials Business Plan, SPCC Plan, and site security measures. Likewise, the EITP would include a Hazardous Materials and Waste Handling Management Program, SPPC Plan, and Hazardous Materials Business Plan, and would include mitigation measures to reduce impacts to less than significant. The ISEGS FSA/DEIS, the BLM's ISEGS FEIS, and the EITP EIR/EIS conclude that there would be no significant impact from construction-generated hazardous materials with the use of BMPs; compliance with all laws, ordinances, regulations, and standards; and implementation of mitigation measures. In addition, the analyses for both projects conclude that operational impacts would also be reduced to less than significant. Therefore, the combined impact would be reduced to less than significant during construction and operation of both projects.

Construction and operation of both the EITP and ISEGS could have the potential to expose the public to previously unidentified contamination or to mobilize existing contaminants in soils during construction; however, this would result in only a minor, short-term, and localized impact because of precautions that would be taken by both applicants. Neither proposed project would traverse any known contaminated sites but would cross or be in close proximity to fuel pipelines (including the construction of a pipeline for the ISEGS project). A Phase I Environmental Site Assessment conducted for the ISEGS site in 2007 identified no "Recognized Environmental Conditions," and the site has never been used for commercial or industrial activities. A Phase I Environmental Site Assessment has not yet been conducted for EITP but would be conducted prior to construction. If contamination were discovered during construction, APMs and mitigation measures for both the EITP and ISEGS would reduce any potential exposure to hazardous materials to less than significant.

Regarding the future SNSA, Conditions of Certification TRANS-3 and TRANS-4 would ensure that potential glare from the project is minimized, TRANS-5 would ensure the project complies with FAA lighting recommendations, and TRANS-6 would require notifying the FAA of potential air hazards during daylight hours. The CEC and the BLM have concluded that these measures would reduce ISEGS potential impact on the SNSA to less than significant. Similarly, the CPUC and the BLM have both concluded the MM HAZ-2, which requires the EITP to comply with all FAA requirements upon construction of the SNSA, would also reduce impacts to less than significant. Therefore, the combined impact of the two projects would be less than significant.

3.8 Hydrology and Water Quality

This section contains a description of the environmental and regulatory setting and potential impacts associated with construction and operation of the proposed project and alternatives with respect to hydrology and water quality. Water resources that would be used during construction and operation and maintenance are also discussed.

3.8.1 Environmental Setting

3.8.1.1 Surface Water Resources and Flooding

The proposed project site is in the western portion of the Basin and Range Physiographic Province in southeastern California and southwestern Nevada. Basins are valleys or depressions juxtaposed to mountainous terrains. A typical elevation difference between the two is about 4,000 vertical feet (see Figure 3.8-1). The province, which covers an area from central Utah to eastern California, may have been created by crustal extension, which produced vertical faults along which the basins and ranges developed (Blakley et al. 2000).

The proposed project area includes two basins, the Eldorado Valley and the Ivanpah Valley, and three mountain ranges, which are (from east to west) the Highland Range, the McCullough Range, and the Lucy Gray Mountains. Within Eldorado Valley, the proposed project crosses or is relatively close to Eldorado Dry Lake (in the northern part of Eldorado Valley) and at least 15 mapped dry washes. A dry wash, or desert wash, is a gravelly, dry bed of an intermittent stream that usually only flows during precipitation events. In Ivanpah Valley, the proposed project crosses Ivanpah Dry Lake and is relatively close to Roach Dry Lake, Jean Dry Lake, and at least 15 dry washes (see Figure 3.8-2). There are likely many more dry washes within the proposed project area that are unmapped and could be impacted by the proposed project. During field reconnaissance, the applicant identified hundreds of small desert washes along the proposed project route (SCE 2009). In hydrological terms, basins are areas drained by a single major river or a more complex drainage system comprised of several surface water features such as rivers and lakes, principally dry lakes (lakes that receive surface water from desert washes in an internal drainage setting, then evaporate back into the atmosphere and/or contribute to groundwater). Basins can be divided into sub-basins, which in turn are divided into consecutively smaller units such as watersheds, subwatersheds, and catchments. Annual precipitation in these watersheds is quite low, ranging from 4 to 10 inches (California Department of Water Resources [CDWR] 2004, ~~Nevada~~Clark County Department of Air Quality and Environment Management [~~N~~DAQEM] 2009). Surface water within the watershed drains into a number of dry lakes. Dry lakes are ephemeral water features; in the project area; they are located in the central valley (~~N~~DAQEM 2009~~)~~). Table 3.8-1 shows intermittent stream crossings of the proposed project.

Table 3.8-1 Mapped Intermittent Stream Crossings along the Proposed Project Components

Project component	Number of crossings depicted on USGS maps*
Eldorado Substation to McCullough Mountains (MPs 0 – 8.7)	13
McCullough Mountains (MPs 8.7 – 12.0)	2
McCullough Mountains to Ivanpah Substation (MPs 12.0 – 34.5)	44**
Ivanpah Substation	6
Alternative A	9
Alternative B	10
Alternative C	21
Alternatives D & E	2

Source: SCE 2009
Notes:
* Applicant surveys indicate "many small and intermediate sized washes" along route in addition to mapped features.
** Applicant surveys indicate "hundreds of small and intermediate sized washes" along route in addition to mapped features.

The surface of the proposed project site contains desert scrub vegetation, desert washes, and dry lakes. More than 90 percent of the site is sparsely to moderately vegetated, with the remaining area made up of dry lakes, desert washes, and disturbed (human-made) areas that consist of roads and sediment berms. Alluvium in the area is composed of clay, sand, and gravel material. The soils and alluvium are highly susceptible to erosion as evidenced by incised scouring and braided drainage channels.

The desert washes, which are typical in the Mojave Desert region, are braided (~~streams that~~ exhibit numerous channels that split off and rejoin each other to give a braided appearance). These streams flow only intermittently during seasonal precipitation events. ~~Such streams~~They are unstable and can migrate laterally during significant runoff occurrences. Water in the project area commonly flows into dry lakes. It is also possible for water in the dry washes to flow to perennial streams during significant precipitation events. Generally, significant drainage in the area appears to be internal; that is, dry washes transport water to dry lakes, where the water either evaporates or contributes to groundwater.

Dry washes can also carry destructive bedloads (boulders and gravels) during rain events. The portion of the proposed project located in Clark County, Nevada, has been mapped as primarily outside the 100-year and 500- year floodplains, with the exception of the dry lakes that are mapped as Federal Emergency Management Agency (FEMA) Zone A, within the 100-year floodplain. The portion of the proposed project in San Bernardino County, California, is mapped as FEMA Zone D, indicating that there are possible but undetermined flood hazards in the area.

Geologically, the site is located on a series of alluvial fan lobes that form large cone-shaped sedimentary deposits. This is a common depositional environment in this region (Reading 1980). It is likely that most of the proposed project area is on alluvial fans that have originated from significant amounts of flowing water carrying and subsequently depositing sediments across their entire extent during their lifespan. The hydrologic processes that occur on alluvial fans can be random and difficult to model. Sediments, which can range from clay to large boulders, are transported across alluvial fans by water in desert washes, debris flows, and sheet floods. Flood events on alluvial fans in arid climates are triggered by significant storms. In the Mojave Desert region, these would include the random summer cloudbursts that occur infrequently but can supply a large amount of water to a small area, as well as larger storms such as tropical storms that occur on a 100-year time scale. Any of these storms could result in flooding that could cause significant damage across the proposed project area and could cause significant localized destruction.

A specific approach to understanding and assessing flood hazards on alluvial fans has been developed for arid alluvial fans near Laughlin, Nevada. This approach uses geologic mapping to determine active and inactive portions of alluvial fans. Physical features such as stratigraphic relationships, topography, drainage patterns, soil development, and surface morphology are used to determine active and inactive portions of fans (House 2005). Certain portions of alluvial fans can become inactive and remain inactive for thousands of years. Those areas would be considered suitable for building. Conversely, very active portions of alluvial fans may need additional hydrological surveys and appropriate engineering controls to assure that any impacts to the public and the environment would be within acceptable constraints. This approach may improve the accuracy of surface water modeling on alluvial fans and reduce the associated flood hazards. Figure 3.8-3 shows the proposed project facilities with the flood hazard mapping developed by House.

In the PEA, the applicant completed a historical hydrological model on site area alluvial fan(s) based on similar work on alluvial fans performed near Laughlin, Nevada (House 2005). The applicant extrapolated the data by applying the methodology from the Laughlin area model to the California portion of the project area. Table 3.8-2 provides the applicant's assessment of flooding risks along the route and alternatives according to the methodology.

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Figure 3.8-1: 1 of 2
Eldorado-Ivanpah Transmission Project

Hydrology and Physiography Around the Proposed Project

Mesquite Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
IVANPAH VALLEY
SAN BERNARDINO CO.
CLARK MOUNTAIN RANGE
LUCY GRAY MOUNTAINS
McCULLOUGH RANGE
HIGHLAND RANGE
NEVADA
CALIFORNIA
CLARK CO.
IVANPAH RANGE
NEW YORK MOUNTAINS
Primm
IVANPAH
MT. PASS
Nipton
Nipton Road
C
D
E
15
164

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road

- 10 ft Contour Interval

NHD Hydrology
- Artificial Path
- Connector
- Underground Aqueduct
- Intermittent Stream/River

N

0 1 2 3 4 5
Miles
1 in = 2 miles

March 2010

OR ID NV UT CA AZ

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Figure 3.8-1: 2 of 2
Eldorado-Ivanpah Transmission Project

Hydrology and Physiography Around the Proposed Project

PROPOSED PROJECT
- Transmission L.ine
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road

- 10 ft Contour Interval

NHD Hydrology
- Artificial Path
- Connector
- Underground Aqueduct
- Intermittent Stream/River

0 1 2 3 4 5
Miles
1 in = 2 miles

March 2010

OR ID NV UT CA AZ

IRD SPRING RANGE
IVANPAH VALLEY
MCCULLOUGH RANGE
SHEEP MOUNTAINS
LUCY GRAY MOUNTAINS
ELDORADO VALLEY
HIGHLAND RANGE
Jean Lake (Dry)
Roach Lake (Dry)
Eldorado Lake (Dry)
Jean
Primm
ELDORADO
CALIFORNIA
NEVADA
A
B
D
E
604
161
53
15
95
165

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Figure 3.8-2
Eldorado-Ivanpah Transmission Project

Hydrological Features and Flood Zones Around the Proposed Project

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road
- Hydrological Feature

Flood Zones (FEMA, 2005)

Flood Zones (FEMA, 2005)
- A - An area inundated by 100-year flooding
- D - Areas in which flood hazards are undetermined
- X - An area that is determined to be outside the 100- and 500-year floodplains

N

0 1 2 3 4 5
Miles

December 2009

NV UT CO CA AZ NM

Goodsprings
Jean
Primm
IVANPAH
MT. PASS
Nipton
ELDORADO
Searchlight
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Nipton Road
SPRING MOUNTAINS
IVANPAH VALLEY
SHEEP MTS
LUCY GRAY MOUNTAINS
McCULLOUGH RANGE
HIGHLAND RANGE
ELDORADO VALLEY
CLARK MOUNTAIN RANGE
CLARK CO.
SAN BERNARDINO CO.
53
161
604
15
164
95
165
A
B
C
D
E

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Hazard Class

Very High
Areas of the most frequent and concentrated runoff including: well-defined active channels; broad, gravelly, and sparsely vegetated zones of intricate distributary flow networks on active alluvial fans; alluvial fan feeder channels; local trunk drainages; and terminal playas. Channel boundaries are unstable and may shift considerably during and between large flows. Surfaces and deposits are late Holocene in age (0 to approximately 4,000 years).

High
Areas of frequent, concentrated to widespread, relatively unconfined runoff. This class includes: active and intermittently active alluvial fan areas; low channel-bounding terraces; and parts of playa perimeters. Includes areas that are vulnerable to overflow and re-occupation by active channel networks. Surfaces and deposits are late Holocene in age (0 to approximately 4,000 years).

Moderate
Areas of intricately mixed, highly active alluvial surfaces; intermittently active or recently abandoned alluvial surfaces; and dispersed remnants of stable alluvial surfaces too small to map. Includes active and recently (last 100 to few 1000s of years) alluvial surfaces, distal areas of overflow from active surfaces, and some active alluvial surfaces fed by small drainage areas. Surfaces and deposits range from late Holocene to latest Pleistocene in age (0 to approximately 14,000 years).

Low
Areas of stable alluvial surfaces that have been largely excluded from active alluvial fan processes for more than 5,000 years. Members of the class, however, are linked too closely in space and time with areas in the high and moderate classes to assert that they are not flood hazardous. Surfaces and deposits range from early Holocene to latest Pleistocene in age (approximately 8,000 to at least 14,000 years).

None
Areas that do not experience alluvial fan flooding. This includes areas that have been free from active alluvial fan processes for 10,000s to 1,000,000 of years.

Variable
Small areas that may have special hazardous conditions that are not link to alluvial fan hazards. Includes colluvial gravel and debris flow deposits on steeply sloping hillslopes and variably active talus piles and colluvial debris cones below steep bedrock cliffs.

Indeterminate
Areas that have been extensively modified by excavation, artificial fill, or commercial development.

Unmapped
Areas mapped as bedrock.

Goodsprings
Jean
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Primm
Nipton
IVANPAH
MT. PASS
ELDORADO
IVANPAH VALLEY
SHEEP MOUNTAINS
LUCY GRAY MOUNTAINS
CLARK MOUNTAIN RANGE
MCCULLOUGH RANGE
HIGHLAND RANGE
CLARK CO.
CALIFORNIA
Nipton Road
53
604
15
164

Figure 3.8-3
Eldorado-Ivanpah Transmission Project

Flood Hazard Classification

PROPOSED PROJECT
- Transmission L.ine
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation

- City
- Road

Extent of Available Flood Hazard Data

N

0 1 2 3 4 5
Miles
1 in = 3 miles

2010

OR ID WY NV UT CO CA AZ NM

Source: House, P.K., Ramelli, A.R., Crouse, E.C., Arritt, C.M., and Buck, B.J., 2006, Digital data for the surficial geologic map and geologic assessment of piedmont and playa flood hazards in the Ivanpah Valley area, Clark County, Nevada: Nevada Bureau of Mines and Geology.

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Table 3.8-2 Flood Class Ratings Along the Proposed Route and Alternatives

Milepost Numbers		Flood Class Description [Approximate % Low (L), Moderate (M), High (H), Very High (VH)]			
From	To	L	M	H	VH
Primary Route Milepost					
0	2.33	26	30	4	40
2.33	4.32	31	0	29	40
4.32	6.32	0	62	12	26
6.32	8.18	0	12	9	79
8.18	10.05	27	38	35	0
10.05	11.92	92	0	0	8
11.92	13.91	18	3	17	62
13.91	15.86	55	0	17	28
15.86	17.94	9	0	44	47
17.94	19.87	22	0	39	39
19.87	21.64	14	0	18	68
21.64	23.11	6	0	7	87
23.11	24.59	10	0	15	75
24.59	26.45	54	0	10	36
26.45	29	72	0	5	23
29	30.26	0	23	30	47
30.26	32.24	0	0	59	41
32.24	34.19	0	0	64	36
34.19	34.56	0	0	12	88
Eldorado Substation		NA	NA	NA	NA
Ivanpah Substation		0	0	50	50
Alternative A		0	57	0	43
Alternative B		0	53	11	36
Alternative C		19	23	21	37
Alternative D		29	0	0	71
Alternative E		89	0	0	11
Underground Conduit Alternative 1		0	0	40	60
Underground Conduit Alternative 2		0	0	50	50
Path 2-Section 2		37	38	12	13
Microwave Tower		37	38	12	13

Note: Methodology from House 2006 at NBMG for most Nevada locations. For California and Eldorado Valley-McCullough Mountains, Nevada, values estimated from SCE and Google Earth aerial images (accessed November 2008) and field reconnaissance November 2008. All of Alternatives C and D are included within the Nevada totals. Computed milepost numbers and flood class percentages are not rounded, but should not be considered to have the precision or accuracy of greater than ±10 percent.

*The Eldorado substation is in operation and flood protection is in place.

3.8.1.2 Surface Water Quality

Although ephemeral streams and washes do not have beneficial use designations assigned by the states of California and Nevada, these systems do provide natural distribution of water and sediments on floodplains, recharge for groundwater in the region, and a sporadic but local water supply for wildlife. No information is available on the surface water quality at the site during rain events, but the nature of the flooding that occurs there would tend to result in flood waters of high turbidity. Highly turbid waters would be more able to contain any contaminants that had

been present on the soil surface. As this is a rural, undeveloped area, anthropogenic contaminants on the surface are expected to be low to non-existent.

3.8.1.3 Groundwater Resources

The proposed project site lies within the Basin and Range Physiographic Province, which has principal aquifer media of volcanic rocks, carbonates, and basin-fill sediments. Together, these aquifers are called the Basin and Range Aquifer System. The Basin and Range Physiographic Province is divided into hydrographic basins at the regional level, depending on geologic drainage features such as the drainage boundaries of a large river or stream.

Four groundwater basins underlie the proposed project area. Three are solely in Nevada, and one connects California and Nevada as shown in Figure 3.8-~~34~~ (CDWR 2004, NDCNR n.d.). In general, the groundwater basins lie beneath the Ivanpah and Eldorado desert valleys and are confined by local mountain ranges. Smaller portions of the proposed project facilities span the Jean Lake Valley and the Piute Valley groundwater basins. Recharge is primarily via percolation through alluvial deposits at ephemeral washes and the bases of neighboring mountain ranges. The coarse-grained alluvial deposits allow for infiltration of water during precipitation events. In Basin and Range aquifers, water is withdrawn primarily for agricultural uses (77 percent in 1985). Other uses include public supply (18 percent), mining, industrial, and thermoelectric power use (4 percent), and domestic and commercial use (1 percent; Planert and Williams 1995).

All of the sub-basins crossed by the Nevada portion of the proposed project are designated groundwater sub-basins that require additional administration to protect groundwater resources and declare preferred uses.

The Ivanpah Valley Groundwater Basin spans over 630 square miles across the California-Nevada state line. In California, basin number 6-30 is located in the eastern part of the South Lahontan Hydrologic Region. In Nevada, Ivanpah Valley Northern (164A) and Southern (164B) basins are in the southwestern part of the Central Hydrologic Region. This basin is confined by the Clark Mountains to the northwest, the Ivanpah Range to the west, the New York Mountains to the ~~southwest~~southeast, and the Lucy Gray Mountains to the east. This groundwater basin consists of Quaternary alluvium deposits up to 825 feet thick bound by northwest-trending faults. ~~As with surface drainage, groundwater~~Groundwater flows northward and is discharged via pumping and underflow to Las Vegas Valley (CDWR 2004).

The Jean Lake Valley Groundwater Basin (basin 165) covers 96 square miles in the Central Hydrographic Region. This basin is confined by the Sheep Mountains and Lucy Gray Mountains to the west, the McCullough Range to the east, and the Bird Spring Range to the north. Water is withdrawn primarily for mining and milling processes. A small amount is withdrawn for stockwater (NDCNR n.d., NDWR 2009).

The Piute Valley Groundwater Basin (basin 214) covers 331 square miles in the Colorado River Basin Hydrographic Region. This basin is confined by the McCullough Range on the northwest, the New York Mountains and Castle Mountains on the west, and the Highland Range, Newberry Mountains, and Dead Mountains on the east. This basin crosses into California. Water is withdrawn primarily for municipal use. Small amounts are withdrawn for quasi-municipal use, mining and milling processes, stockwater, and commercial use (NDCNR n.d.).

The Eldorado Valley Groundwater Basin (basin 167) covers 530 square miles in the Central Hydrographic Region. This basin is confined by the Highland Range on the southwest, the McCullough Range and Black Mountains on the northwest, and the Eldorado Mountains on the east. Water is withdrawn primarily for mining and milling processes. Smaller amounts are withdrawn for municipal use, stockwater, and industrial use (NDCNR n.d.).

Figure 3.8-4
Eldorado-Ivanpah Transmission Project
Groundwater Basins, Springs, and Wells Around the Proposed Project
PROPOSED PROJECT
Transmission Line
Telecommunications Line
Redundant Telecommunications Line
Microwave
ALTERNATIVES
Transmission Line Alternatives
Redundant Telecommunications Line - Mountain Pass
Redundant Telecommunications Line - Golf Course
Proposed Microwave Tower
Proposed Substation
Existing Substation
City
Road
Spring or Well Location
Nevada Groundwater Basins
Designated Groundwater Basin
Designated (Irrigation Denied)
Designated (Preferred Use - Irrigation Denied)
California Groundwater Basins
6-30
7-1
6-21
6-29
6-28
6-33
6-22
0 1 2 3 4 5
Miles
March 2010
NV
UT
CO
CA
AZ
NM
Arden Enterprise
Sloan
Boulder City
Goodsprings
Jean
Primm
IVANPAH
MT. PASS
Nipton
Ivanpah
Searchlight
Nelson
ELDORADO
Eldorado Lake (Dry)
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Mesquite Lake (Dry)
CALIFORNIA
NEVADA
ARIZONA
CLARK CO.
INYO CO.
SAN BERNARDINO CO.
MOHAVE CO.
BIRD SPRING RANGE
SPRING MOUNTAINS
IVANPAH VALLEY
SHEEP MTNS
LUCY GRAY MOUNTAINS
MCCULLOUGH RANGE
HIGHLAND RANGE
ELDORADO VALLEY
ELDORADO MOUNTAINS
BLACK MOUNTAINS
CLARK MOUNTAIN RANGE
IVANPAH RANGE
NEW YORK MOUNTAINS
CASTLE MOUNTAINS
NEWBERRY MOUNTAINS
162
163
164A
164B
165
166
167
212
213
214
215
6-28
6-29
6-21
6-22
6-33
6-30
7-1

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3.8.1.4 Groundwater Quality

Groundwater quality in the Basin and Range aquifers varies by basin. Generally, groundwater quality is high near the alluvial fan deposits at the base of mountain ranges. Groundwater quality decreases where increased discharge or excessive evaporation in confined basins resulted in salination of groundwater (Planert and Williams 1995).

The CDWR records indicate that groundwater levels in the Ivanpah Valley Groundwater Basin within California ranged from 100 to 350 feet below the surface according to well logs from 1916 through 1984 (CDWR 2004). One U.S. Geological ~~Service~~Survey (USGS) monitoring well ~~is~~was present near the proposed project area near Jean, Nevada. The well ~~has been~~was monitored ~~since~~ between September 1990 and December 2008. Typical well elevations are between 535 and 595 feet below ground surface. This well samples the Ivanpah Valley sub-basin of the Basin and Range Aquifer (USGS 2009).

Water Supply Wells and Springs

Table 3.8-~~1~~3 identifies water supply wells and springs/seeps within 1 mile of the proposed project and alternatives. These wells span the four groundwater basins described above. -Water supply wells and springs are also displayed in Figure 3.8-3.

Table 3.8-~~1~~3 Water Supply Wells and Springs/Seeps within 1 Mile of the Proposed Project and Alternatives

Alignment	Number of Wells and Springs
Eldorado–Ivanpah Transmission Line	52
Telecommunications Line	20
Ivanpah Substation	0
Transmission Alternative A	5
Transmission Alternative B	8
Transmission Alternative C	37
Transmission Alternative D	25
Transmission Subalternative E	24
Telecommunication Alternative (Golf Course)	35
Telecommunication Alternative (Mountain Pass)	38

No U.S. Environmental Protection Agency (U.S. EPA)-designated sole-source aquifers would be crossed by the proposed project in either California or Nevada. Sole-source aquifers are groundwater basins that supply at least 50% of the drinking water in the area overlying the aquifer and are in areas where there are no alternative drinking water source(s) available that could physically, legally, and economically supply all drinking water needed (U.S. EPA 2008).

3.8.1.5 Water Use and Discharge

~~The applicant has indicated that water would be used for dust suppression in daily construction activities and for sanitary and fire suppression purposes during operation of the Ivanpah Substation. The applicant has been requested to prepare a Water Use Plan, through mitigation measure W-2, that identifies sources and quantities of water to be used in these activities.~~

The applicant has indicated that water would be used for dust suppression in daily construction activities. The applicant has arranged to acquire this water from existing wells at the Molycorp Mine Mountain Pass facility. Molycorp's Mountain Pass facility obtains water from the Ivanpah and Shadow Valley fresh water production well fields. The California Department of Public Health (CDPH) conducted Source Water Drinking Assessments in both well fields in 2001 (CDPH 2001). These reports indicate that the Ivanpah well field can produce 675 gallons per

minute (gpm) and the Shadow Valley well field can produce 830 gpm. Molycorp currently uses only a small fraction of this water and has agreed that there would be sufficient water available for the proposed project.

It is anticipated that wastewater in the region would increase significantly if the Southern Nevada Supplemental Airport is built. In 2006, the wastewater treatment facility in the Town of Primm had a daily flow of 0.48 million gallons per day (mgd). If the Ivanpah airport is developed fully, it is projected that a maximum of 40 million passengers per year would pass through the airport, which would increase wastewater generation by 0.78 mgd. However, this wastewater would be treated on the airport site, not at the Town of Primm wastewater treatment facility.

~~Presently, a maximum of 252 acre-~~The Town of Primm is within the Ivanpah Valley-Northern Part hydrographic area (NDWR 2009). This basin has an estimated perennial yield of 700 acre-feet per year (acre-ft/yr) and an estimated commitment of water of 2,108 acre-ft/yr. Currently, a maximum of 252 acre-ft/yr of water is reclaimed/recycled from non-potable sources in the Town of Primm area. Some of this could be used for the Bighorn Power Plant, a 580-MW combined-cycle gas-fired power plant located in the Town of Primm. The Bighorn Power Plant currently uses reclaimed water supplied by the Town of Primm wastewater treatment plant as its primary water source (NDEP 2008). An additional 3 acre-ft/yr is supplied by a groundwater well on the power plant site.

3.8.2 Applicable Laws, Regulations, and Standards

3.8.2.1 Federal

Clean Water Act

In 1972, Congress passed the Federal Water Pollution Control Act, which was reauthorized in 1977, 1981, 1987, and 2000 as the Clean Water Act (CWA). The goal of the law is to eliminate pollution in the nation's waters by imposing uniform standards on all municipal and industrial wastewater sources based on the best available technology.

Sections 301 and 402 Permitting

Sections 301 and 402 of the CWA prohibit the discharge of pollutants from point sources to "Waters of the U.S.," unless authorized under a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits can be issued by the U.S. EPA or by agencies in delegated states. The NPDES permit program has been delegated in California to the State Water Resources Control Board (SWRCB) and in Nevada to the Bureau of Water Quality Planning.

Safe Drinking Water Act

This act was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources, which are rivers, lakes, reservoirs, springs, and groundwater wells. This act authorizes the EPA to set national health-based standards for drinking water to protect against both naturally occurring and manufactured contaminants that may be found in drinking water. The act also mandates a Groundwater/Wellhead Protection Program be developed by each state to protect groundwater resources that are a source for public drinking water.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is administered by the FEMA, a component of the U.S. Department of Homeland Security. The NFIP is a federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding.

In support of the NFIP, FEMA identifies flood hazard areas throughout the U.S. and its territories by producing Flood Hazard Boundary Maps, Flood Insurance Rate Maps, and Flood Boundary and Floodway Maps. Several areas of flood hazards are commonly identified on these maps. One of these areas is the Special Flood Hazard Area, a high-

risk area defined as any land that would be inundated by a flood having a 1 percent chance of occurring in any given year (also referred to as the base flood).

Participation in the NFIP is based on an agreement between local communities and the federal government. The agreement states that if a community adopts and enforces a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas, the federal government will make flood insurance available to the community.

3.8.2.2 State

Governing Agencies

In California, water resource supplies are regulated by the SWRCB and Regional Water Quality Control Boards (RWQCBs). Water resource quality is regulated by the California Department of Public Health Drinking Water Source Assessment and Protection Program. State water quality standards allow waterbodies to be managed by establishing goals based on (1) designated uses of the water, (2) criteria set to protect human and aquatic organism health, and (3) anti-degradation requirements to prevent current water quality from deterioration. Waters listed as "impaired" do not fully support their designated uses. Section 305(b) of the CWA requires states to submit water quality reports to the EPA every two years that provide a state-wide assessment of all waters. Section 303(d) requires states to provide a list of impaired waters only, identifying possible pollutants and prioritizing those waters for further pollution controls.

Natural resources in the State of Nevada are managed by the Department of Conservation and Natural Resources. Water resources are regulated by Nevada Division of Water Resources (NDWR), which is part of the Department of Conservation and Natural Resources. NDWR has defined a number of goals and objectives to conserve and manage Nevada's water resources for the citizens of Nevada. The Water Rights Section maintains a detailed Water Rights database and quantifies existing water rights, determines whether adequate water is available for new developments, manages surface and flood control, and manages and issues permits for the use of all water rights within the state. NDWR manages both surface and subsurface water rights. Water pollution and permitting are managed by the Nevada Division of Environmental Protection.

Statutes and Regulations

California Porter-Cologne Water Quality Control Act

This act was passed in 1969. It regulates surface water and groundwater within California and assigns responsibility for implementing CWA §401 through 402 and 303(d). It established the SWRCB and divided the state into nine regions, each overseen by an RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs. In California, the proposed project area is administered by the Lahontan RWQCB (LRWQCB), Region 6, in San Bernardino County. The regional board governs protection of surface waters by assessing attainment of designated beneficial uses. Currently, 23 uses are established for surface waters within the state.

California Department of Fish and Game Code §1600-1603, Streambed Alteration Agreement

This statute regulates activities that would "substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of a natural watercourse" that supports fish or wildlife resources. A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks, and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. A Streambed Alteration Agreement (SAA) must be obtained for any proposed project that would result in an adverse impact to a river, stream, or lake. If fish or

wildlife would be substantially adversely affected, an agreement to implement mitigation measures identified by the CDFG would be required. An SAA would likely be required for impacts to drainages in the EITP in California.

Nevada Revised Statute 444A.420 and Nevada Administrative Code 445A.118-225

The Nevada Revised Statute and Administrative Code laws regulate surface water within the state and assign responsibility for implementing CWA §401 through 402 and 303(d) in Nevada. The Nevada Bureau of Water Pollution Control is the state entity in charge of governing the water statutes. Nevada establishes both numeric and narrative water quality standards for surface waters. None of the drainage features encountered by the project in Nevada have established numeric water quality standards. However, Roach and Ivanpah dry lakes and all ephemeral washes must meet narrative water quality standards, which primarily address protection of the features from pollutants and toxics (Heggeness 2008).

Construction General Stormwater Permit

CWA §402 regulates construction-related stormwater discharges to surface waters through the NPDES program. In California, the EPA has delegated to the SWRCB the authority to administer the NPDES program through the RWQCBs, and has developed a general permit for Storm Water Discharges Associated with Construction Activities, the Construction General Permit (Water Quality Order 99-08-DWQ). Because the proposed project would disturb more than 5 acres, the applicant is required to obtain an NPDES Construction General Permit from the SWRCB, which requires them to prepare a SWPPP or obtain individual stormwater permits. The proposed project area is under the jurisdiction of the LRWQCB; therefore, the LRWQCB would need to be notified of the applicant's intent to proceed. No specific California SWRCB regulations exist pertaining to the treatment of fuel spills during construction, although petroleum-contaminated materials must be disposed of in accordance with applicable state and local regulations.

The Nevada Division of Environmental Protection (NDEP) has been delegated the authority by the EPA to administer the NPDES program in Nevada, through the Bureau of Water Pollution Control, which manages construction stormwater permits. The construction stormwater permit is required for all sites larger than 1 acre. A waiver is possible if the site is less than 5 acres and meets certain stipulations. The permit requires applicants to prepare and enforce a SWPPP during construction. Industrial stormwater permits and septic system permits are also managed under NDEP. No specific Nevada regulations exist pertaining to the treatment of fuel spills during construction, although petroleum-contaminated materials must be disposed of in accordance with applicable state and local regulations.

Groundwater Protection Areas and Wellhead Protection

The overall concept behind wellhead protection is to develop a reasonable distance between point sources of pollution and public drinking water wells so that releases from point sources are unlikely to impact groundwater from the well. The California Department of Public Health established the Drinking Water Source Assessment and Protection Program, which guides local agencies in protecting surface water and groundwater that are sources of drinking water. The California Department of Pesticide Regulation's Groundwater Protection Program is charged with identifying areas sensitive to pesticide contamination and develops mitigation measures and regulations to prevent pesticide movement into groundwater systems. In Nevada, the NDEP administers the Wellhead Protection Program, which is developed and implemented at the local level, such as the public water system, city, or township (Clark County 2008). The NDEP offers guidance to the local districts, endorses local wellhead protection programs, enforces regulatory setbacks to protected groundwater and wellhead areas, and tracks specific areas delineated as wellhead and source water protection areas.

3.8.2.3 Regional and Local

Basin management for the proposed project area is administered by ~~the Mojave Water Agency in~~ San Bernardino County and the Southern Nevada Water Authority in Clark County. ~~The Mojave Water Agency Regional Water~~

~~Management Plan was developed in 1994 and is still in place (CDWR 2004).~~ A primary mandate of these entities is to ensure long-term public water supply by protecting surface water and groundwater resources, including supply, storage, recharge capability, and chemical quality. The applicant would confer with ~~the Mojave Water Agency~~ San Bernardino County and the Southern Nevada Water Authority during implementation of the proposed project to ensure protection of groundwater resources and compliance with any established groundwater management plans, and, if necessary, to secure permits needed for encroachment on water district easements. The applicant would also confer with the Clark County Water Management Team.

San Bernardino County

Floodplain Management

The San Bernardino County Flood Control District was formed as a progressive measure to preserve and promote public peace, health, and safety in the aftermath of disastrous 1938 floods. The district exercises control over all main streams in the county, acquires a right-of-way (ROW) for all main channels, constructs channels, and carries out an active program of permanent channel improvements in coordination with the U.S. Army Corps of Engineers (USACE). The district administers encroachment permits needed for flood channel crossings or any work within the district's ROW, if they are required.

Stormwater Management

The LRWQCB requires the unincorporated areas of San Bernardino County and the San Bernardino Flood Control District, as permittees, to be included in the NPDES Municipal Stormwater Permit. The Municipal Stormwater Permit and §4 of the Report of Waste Discharge, dated April 1995, require the development and adoption of New Development/Redevelopment Guidelines (the Guidelines).

The Guidelines are to be used by the permittees of the San Bernardino County Stormwater Program as a supplement to the Drainage Area Management Program and the Report of Waste Discharge. The purpose of preparing the Guidelines was to identify pollutant prevention and treatment measures that could be incorporated into development projects. The Guidelines recommend which Best Management Practices (BMPs) should be required as standard practice. The Guidelines provide information on stormwater quality management planning, general conditions, special conditions, and construction regulatory requirements.

Currently, the County of San Bernardino does not have its own specific standards but follows state standards for water quality. During construction, projects are required to obtain coverage under the California General Permit for Construction Activities, which is administered by the RWQCB. Projects must identify and implement stormwater management measures that would effectively control erosion and sedimentation and other construction-based pollutants during construction. Projects must also identify and implement other management measures, such as construction of detention basins, that would effectively treat pollutants expected for the post-construction land uses.

All future individual construction projects over 1 acre that are implemented under the County of San Bernardino General Plan will be required to have coverage under the California General Permit for Construction Activities (County of San Bernardino 2007). As required in the General Permit for Construction Activities, during and after construction, BMPs would be implemented to reduce or eliminate adverse water quality impacts resulting from development. Compliance with applicable state and local water quality regulations would ensure that impacts to water quality would be less than significant.

Clark County

Floodplain Management

The Clark County Regional Flood Control District has a comprehensive floodplain management plan in place that includes a regulatory program that establishes standards and requirements for flood hazard management. The county has adopted revised regulations, the Uniform Regulations for the Control of Drainage, that comply with

national FEMA standards and provide regulatory control over land development in floodplain areas. These regulations outline when and where a Floodplain Use Permit is required, as well as the process for review of local development permit applications in compliance with these regulations (Clark County Regional Flood Control District 2007).

Stormwater Management

A Stormwater Quality Management Committee has been formed as a partnership entity among the cities of Las Vegas, North Las Vegas, and Henderson; Clark County; and the Clark County Regional Flood Control District. The committee manages stormwater program development and compliance efforts in accordance with the State of Nevada's NPDES program. For inclusion of a project under the state's General Stormwater Permit, project proponents must submit a notice of intent and a SWPPP for all soil-disturbing activities. The criteria for soil-disturbing activities includes those where 1 or more acres will be disturbed, stormwater (free flow or via storm drains) will be discharged to a natural receiving water, and/or detention basins will need to be constructed for onsite stormwater treatment (Clark County Stormwater Quality Management Committee 2009).

Local

The Clark County ~~Department of Air Quality and Environmental Management~~DAQEM oversees environmental issues in the county. The Water Quality Planning Team, which is part of this group, is responsible for ensuring compliance by area permittees for projects that could have an impact on county surface water and groundwater. The group's primary responsibility is to develop and ensure compliance with area-wide water quality management plans. The group deals with issues such as municipal wastewater treatment, stormwater pollution prevention, groundwater management, and wellhead protection. The county also has a federal lands program to coordinate with the six federal agencies and monitor National NEPA planning.

To accomplish the goals noted above, the Clark County Area Wide Water Quality Management Plan (WQMP) was established in 1975. This bill enabled certain counties (including Clark County) to complete their own WQMP. The plan was established in 1978 and approved by EPA in 1979, and has been revised and amended, most recently in 2009. The WQMP establishes eight planning areas. The site is contained in Planning Area 6: Ivanpah-Pahrump Valleys. Planning Area 6 covers approximately 1,690 square miles. The major watershed in the area is the Ivanpah-Pahrump Watershed (DAQEM 2009).

Basin management for the Ivanpah Valley (the California portion of the proposed project) is administered by ~~the Mojave Water Agency in~~ San Bernardino County~~. A Regional Water Management~~ under the goals identified in the 2007 General Plan ~~was developed in 1994 and is still in place (DWR 2004)~~. As discussed above, a primary mandate of the ~~agency~~county is to ensure long-term public water supply. The applicant would confer with ~~the Mojave Water Agency~~San Bernardino County during implementation of the proposed project to ensure protection of groundwater resources and compliance with any established groundwater management plans and, if necessary, to secure permits needed for encroachment on water district easements.

3.8.3 Impact Analysis

This section defines the methodology used to evaluate impacts for hydrology and water quality resources, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.8.4, "Mitigation Measures."

3.8.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to hydrology and water quality resources would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16).

Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

Under NEPA, effects to water resources would occur if the proposed project would:

a. Degrade the quality of surface waters by increasing erosion or sedimentation or by introducing contaminated waters

b. Result in short- or long-term violations of federal or state water quality standards

c. Alter the flow or degrade the quality of groundwater to natural systems or wells for private or municipal purposes

3.8.3.2 CEQA Impact Criteria

Under CEQA, the proposed project would have a significant impact if it would do any of the following:

a. Violate any water quality standards or waste discharge requirements

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge

c. Substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation onsite or offsite

d. Substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite

e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or otherwise substantially degrade water quality

f. Place within a 100-year flood hazard area structures that would impede or redirect flood flows

g. Expose people or structures to a significant risk of loss, injury, or death related to flooding, including flooding as a result of the failure of a levee or dam

h. Cause inundation by mudflow

3.8.3.3 Methodology

This analysis describes the impacts of the proposed project related to water resources for each criterion, and determines whether implementation of the proposed project would result in significant impacts by evaluating effects of construction and operation of the proposed project in the context of the affected environment described in Section 3.8.1.

The purpose of this evaluation was to determine the potential impact to water resources resulting from the proposed project. The impact of random flood events on the proposed project was also assessed, as well as the corresponding impact to public health and the environment. To complete the analysis, published resources including books, journals, maps, and information available via the internet on government websites were reviewed. The PEA was used extensively as a resource document for much of the analysis. In addition, information provided in the Final Staff Assessment/Draft Environmental Impact Statement (FSA/EIS) prepared for the proposed ISEGS located near the proposed Ivanpah Substation was evaluated. Published surface and groundwater maps and reports provided the information for the environmental setting section.

While Section 3.8.1, "Environmental Setting," identifies resources within the general vicinity of the proposed project, the impact analysis focuses on water resources that are directly crossed by the power lines or telecommunication lines, or are within the area impacted by the Ivanpah Substation, or are within 150 feet of the project centerline in the case of wells, seeps, and springs. When significant impacts occur, mitigation measures are outlined to reduce the impacts to less than significant levels. Applicant proposed measures (APMs) and agency recommended mitigation measures (MMs) are listed in this section as part of each potential impact analysis.

Readily available public documentation was used to compile this impact analysis. EISs from other projects in the California/Nevada vicinity were reviewed for impact criteria and commonly applied MMs. County plans and BLM Resource Management Plans were assessed for impact thresholds, MMs, and BMPs.

3.8.3.4 Applicant Proposed Measures

The applicant has included the following APMs related to hydrology and water quality:

APM W-1: Avoid Stream Channels. Construction equipment would be kept out of flowing stream channels.

APM W-2: Erosion Control and Hazardous Material Plans. Erosion control and hazardous material plans would be incorporated into the construction bidding specifications to ensure compliance.

APM W-3: Project Design Features. Appropriate design of tower footing foundations, such as raised foundations and/or enclosing flood control dikes, would be used to prevent scour and/or inundation by a 100-year flood. Where floodplain encroachment is required by the CPUC and/or the BLM, and potential impacts require non-standard designs, hydrology/channel flow analysis would be performed.

APM W-4: Avoid Active Drainage Channels. Towers would be located to avoid active drainage channels, especially downstream of steep hillslope areas, to minimize the potential for damage by flash flooding and mud and debris flows.

APM W-5: Diversion Dikes. Diversion dikes would be required to divert runoff around a tower structure or a substation site if (a) the location in an active channel (or channels) could not be avoided; and (b) where there is a very significant flood scour/deposition threat, unless such diversion is specifically exempted by the CPUC and/or the BLM Authorized Officer.

APM W-6: Collect and Divert Runoff. Runoff from roadways would be collected and diverted from steep, disturbed, or otherwise unstable slopes.

APM W-7: Ditch and Drainage Design. Ditches and drainage devices would be designed to handle the concentrated runoff and located to avoid disturbed areas. They would have energy dissipations at discharge points that might include rip-rap, concrete aprons, and stepped spillways. Where diversion dikes are required to protect towers or other project structures from flooding or erosion, these dikes would be designed to avoid increasing the risk of erosion or flooding onto adjacent property.

APM W-8: Minimize Cut and Fill Slopes. Cut and fill slopes would be minimized by a combination of benching and following natural topography where possible.

APM W-9: Prepare and Implement an Approved SWPPP. As a part of the SWPPP, soil disturbance at tower construction sites and access roads would be the minimum necessary for construction and designed to prevent long-term erosion through the following activities: restoration of disturbed soil, re-vegetation, and/or construction of permanent erosion control structures. BMPs in the project SWPPP would be implemented during construction to minimize the risk of an accidental release.

APM W-10: Emergency Release Response Procedures. The Emergency Release Response Procedures developed pursuant to APM HAZ-1 would be maintained onsite (or in vehicles) during construction of the proposed project.

APM W-11: Conduct a Worker Environmental Awareness Program (see BIO-6, CR-2b, PALEO-3). A Worker Environmental Awareness Program (WEAP) would be conducted to communicate environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and proper BMP implementation, to all field personnel prior to the start of construction. This training program would emphasize site-specific physical conditions to improve hazard prevention. It would include a review of all site-specific plans, including but not limited to the project's SWPPP and Hazardous Substances Control and Emergency Response Plan. The applicant would document compliance and maintain a list of names of all construction personnel who had completed the training program.

APM W-12: Properly Dispose of Hazardous Materials. All construction and demolition waste, including trash and litter, garbage, and other solid waste, would be removed and transported to an appropriately permitted disposal facility. Petroleum products and other potentially hazardous materials would be removed and transported to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.

APM W-13: Identify Location of Underground Utilities Prior to Excavation. Prior to excavation, the applicant or its contractors would locate overhead and underground utility lines, such as natural gas, electricity, sewage, telephone, fuel, and water lines, or other underground structures that may reasonably be expected to be encountered during excavation work.

APM W-14: Prepare or Update Spill Prevention, Control, and Countermeasure (SPCC) Plans. The applicant would prepare or update SPCC plans for substations to minimize, avoid, and/or clean up unforeseen spill of hazardous materials during facility operations.

3.8.3.5 Proposed Project / Proposed Action

Construction

The linear components of the proposed project (the Eldorado–Ivanpah transmission line and the telecommunications line) would have very similar construction impacts and are therefore discussed jointly. The transmission line would replace an existing line in approximately the same location.

The potential for increased erosion or siltation on site or off site due to alteration of surface drainage patterns during construction of the proposed project would be minor, localized, and short term. In general, construction activities causing ground disturbance, such as grading, may change natural runoff patterns, thereby affecting natural erosion and siltation processes. Water used for dust suppression during construction could suspend and transport more sediment than is typically moved in the arid climate. In the Ivanpah Valley, sediment load transport to the surface of Ivanpah Dry Lake is part of natural processes. Assessing erosion and siltation impacts includes considering measures for reducing sediment contribution downstream. The applicant has stated that construction equipment would be kept out of flowing stream channels except when absolutely necessary for crossings (APM W-1). Also, transmission towers would be located to avoid active drainage channels (APM W-4). As part of the proposed project construction, the applicant would collect and divert runoff (APM W-6), design ditches and drainages (APM W-7), and minimize cut and fill slopes (APM W-8). All of these measures would help minimize changes to surface drainage patterns and reduce stormwater velocity where changes would occur, therefore preventing excessive erosion and siltation. Proper implementation of MM W-1 (Erosion Control Plan) would require adherence to all BMPs and county plan erosion practices.

The potential for the introduction of hazardous contamination into surface water resources during construction of the proposed project would be minor, localized, and short term. The greatest possibility for hazardous releases would occur at staging areas and refueling stations. As part of construction, the applicant would implement a hazardous materials and waste handling management program (APM HAZ-2) that had emergency release response procedures to address any potential release of hazardous materials (APM W-10), and would properly dispose of hazardous materials (APM W-12). To prevent any potential disturbance to existing utilities and pipelines, the applicant would use a service to identify underground utility lines (APM W-13) before construction began. The applicant would also

implement a SWPPP (APM W-9). Other measures the applicant would implement to decrease the potential of contaminating water resources would be to avoid stream channels (APM W-1) and conduct a worker environmental awareness program (APM W-11). For operations at the substations, the applicant would be required by law to implement SPCC plans (APM W-14), which are designed to prevent or minimize spills. The above-described measures would reduce the potential for spills of hazardous materials and outline cleanup measures to be implemented if a spill occurred. Since groundwater in this region is ~~more than~~ between 100 and 500 feet below the surface, it is highly unlikely that groundwater could become contaminated given the current project design and APMs; therefore, there would be no impacts to groundwater resources. Despite the applicant's measures, however, surface water contamination due to an unanticipated spill of vehicle oil or mud slurry could occur. Due to the minimal amount of surface water and low levels of precipitation in the area, a spill would likely be contained prior to contamination of water resources; therefore, the impact would be minor, short-term, and localized.

The potential for interference with aquifer recharge by the proposed project would be negligible, localized, and short term. In general, increasing the area of impervious surfaces in an area can result in local wells or aquifers receiving fewer groundwater inputs. However, because transmission line construction would replace existing structures, it would not change the existing impervious area. The construction and operation of the new Ivanpah Substation would result in an increase in impervious area. However, this area is small when compared with the amount of non-impervious area in the recharge basins. As part of the construction of the proposed project, the applicant would avoid stream channels (APM W-1), collect and divert runoff (APM W-6), and develop ditch and drainage design (APM W-7). These measures would allow for infiltration of surface water and subsequent groundwater recharge at rates consistent with preconstruction conditions.

~~Until the source of water to be used has been determined, the potential for lowering the local water table during construction would be minor to moderate, localized, and short term. The applicant stated that water would be used for dust suppression during construction. Depending on the quantity used, this could decrease local groundwater supply and recharge. As part of MM W-2 (Water Use Plan), the applicant would be required to identify quantities and sources of water to be used during each phase of the proposed project in order to identify areas where local groundwater supply and recharge could be adversely affected. To avoid such effects, MM W-2 also sets maximum water use limits for the construction and operation phases of the proposed project.~~

The potential for lowering local groundwater levels during construction would be negligible, localized, and short term. The applicant stated that water would be used for dust suppression during construction. The applicant has agreed to a maximum water use of between 32,000 and 40,000 gallons per day (gpd) for the duration of project construction. This equates to between 30.6 and 38.3 acre-ft/yr and a pump rate of 35 gpm. As described in Section 3.8.1.5, the applicant has arranged to acquire this water from existing wells at the Molycorp Mine Mountain Pass facility within the Ivanpah and Shadow Valley fresh water production well fields. The 2001 CDPH Source Water Drinking Assessments state that the Ivanpah well field can produce 675 gpm and the Shadow Valley well field can produce 830 gpm, leading to a combined production rate of 1,505 gpm. The proposed project would require 35 gpm, or 2.3 percent, of the available water from the well fields. Molycorp currently uses only a small fraction of this water and has agreed that there would be sufficient water available for the proposed project. To limit excessive groundwater withdrawals, MM W-2 sets maximum water use limits for the construction and operation phases of the proposed project.

The potential for increased flooding due to modification of surface drainage patterns during construction of the proposed project would be localized and short term. Ground disturbance associated with project construction could alter natural drainage patterns, causing a change in the hydrologic inputs to a stream, thus affecting the flow volume and route. As part of the proposed construction process, the applicant would keep equipment out of stream channels (APM W-1), assess contractor erosion control plans during the bidding process (APM W-2), and avoid placement of transmission poles within active drainage channels (APM W-4). These measures would reduce temporary impacts to flowing steams and permanent impacts to existing drainage channels.

However, these measures do not address construction impacts to existing drainage channels. MM W-3 (On-Site Flow Model) requires the applicant to predict any alteration in flow paths as a result of construction of the proposed project and establish a channel system to mitigate any impacts associated with altered flow paths. Since the project would be located on an active alluvial fan where channels and dry washes are integral to site drainage, preservation of these features is an important mitigation measure. Construction across the Ivanpah Dry Lake would result in disturbance to the playa surface and normal flooding processes. MM W-4 (Restoration of Dry Lake) would restore the lake surface to preconstruction conditions.

Flooding or inundation on alluvial fans due to random storm events during construction of the Eldorado–Ivanpah Transmission Line—or flooding or inundation by mudflow due to modified runoff patterns during construction of the Ivanpah Substation or telecommunications line—would be unlikely, but due to its potential severity, could be significant if it did occur. Because alluvial material is loose, the sediments of alluvial fans can move and shift, particularly during heavy precipitation events such as flash floods. Within an alluvial fan, there are usually established drainage patterns for normal precipitation events. However, if a flash flood event occurred at the proposed project site and the natural drainages were overtopped, there would be sheet flow over some or most of the proposed site. As part of construction, the applicant would keep equipment out of flowing streams (APM W-1), avoid tower placement in active drainage channels (APM W-4), create a system of diversion dikes around any sites where active channels could not be avoided (APM W-5), collect and divert runoff from roadways (APM W-6), develop ditches and drainage devices to reduce stormwater speed (APM W-7), and, as required by law, implement a SWPPP (APM W-9). Even with these measures, construction activities could change natural runoff patterns, thereby affecting waterbody volume and flow, possibly affecting flooding patterns of local waterways.

The proposed project area is in a region known for active alluvial fans, which are vulnerable to flooding and debris flows in times of heavy rain. Project components could be dislodged and transported in a debris flow, resulting in additional risk to the public. However, due to the remote nature of most project components, the potential exposure to the public in areas of high flood hazard would be minimal. Small, unmapped drainages in the active portions of alluvial fans are essential to effective drainage. As a part of MM W-5 (Hydrological Model of Alluvial Fan), the applicant will analyze all alluvial fans in the project area to determine the most active sections. Following this analysis, project components would be sited on the least active areas of the fans to reduce the possibility of project components being dislodged in floods or debris flows.

Transmission line tower footings would be constructed within a 100-year flood hazard area through the Ivanpah Dry Lake, as shown in Figure 3.8.2. Additionally, the telecommunications line would cross through a 100-year flood hazard zone near Nipton Road. The Ivanpah Substation would not be located in a 100-year flood hazard zone. Due to the relatively flat topography of the flood hazard areas, project facilities are unlikely to impede any flood waters, and the risk associated with this hazard would be localized and short term. If flood waters were to pool during extreme precipitation events, they would likely accumulate slowly, allowing ample time for the construction staff to vacate the area. During construction, the applicant would design all tower footings to withstand scour and withstand inundation from a 100-year flood (APM W-3) so that flooding at tower footings would not pose a risk to the public.

The potential for increased risk of loss, injury, or death due to flooding or dam failure during construction of the proposed project would be limited. Flooding could cover an extensive area and would be short term. There are no dams in the area, so there is no impact associated with flooding due to dam failure. As discussed above, the proposed project area is known for active alluvial fans, which are vulnerable to flooding and debris flows in times of heavy rain. Alluvial fan debris flows can carry sediments, cobbles, and even large objects such as trees, cars, and small buildings, thus presenting a threat to surrounding people and property. If project facilities were in the path of flood flows, there would be a slight possibility the facilities could be picked up and carried with the debris flow, presenting a threat to the construction crews, surrounding environment, and local communities.

However, it is unlikely that construction equipment would actually impede or redirect a flood flow. As part of construction of the proposed project, the applicant would keep construction equipment out of flowing streams

(APM W-1), avoid tower placement in active drainage channels (APM W-4), create a system of diversion dikes around any sites where active channels could not be avoided (APM W-5), and develop ditches and drainage devices to reduce stormwater speed (APM W-7). These measures would ensure that active drainage channels were not hindered by construction activity. As mentioned above, small, unmapped drainages in active portions of alluvial fans are essential to effective drainage during extreme precipitation events and flash floods. As a part of MM W-5 (Hydrological Model of Alluvial Fan), the applicant would analyze the fans in the project area to determine the most active sections. Following this analysis, the project facilities would be sited on the least active lobes of the alluvial fans to mitigate against floods or debris flows and their inherent threat to life and property.

Operation and Maintenance

Eldorado–Ivanpah Transmission Line

The operation and maintenance impacts for the proposed project would be similar to the construction impacts. Surface water contamination due to an unanticipated spill of vehicle oil during routine inspection~~,~~ or repair~~, and washing of the line~~ would be possible. Due to the minimal amount of surface water, low levels of precipitation in the area, and implementation of the applicant's operation policies, spills would likely be contained prior to contamination of water resources. ~~Routine washing of the line would require use of local groundwater resources.~~ These surface changes could shift subsurface hydrology in such a way that local wells or aquifers might not receive groundwater inputs at the same rate as they did before construction, resulting in an overall change in local groundwater supply and recharge. Flooding or inundation by mudflow due to modified runoff patterns would be possible. However, the proposed project's impacts would likely be similar to those of the existing transmission line that currently operates and undergoes routine maintenance. Therefore, operation and maintenance activities associated with the transmission line would not result in any additional impacts to water resources.

Ivanpah Substation

The Ivanpah Substation would be constructed within the limits of the proposed ISEGS project. Therefore, the applicant would integrate the Ivanpah Substation surface water management into the BrightSource LLC Surface Water Management Plan, approved by the California Energy Commission (CEC) in the FSA/DEIS for the ISEGS project. The applicant for the ISEGS project, (BrightSource LLC) conducted an onsite investigation of the hydrology of the ISEGS site (including the Ivanpah Substation site) and computer modeling of storm flows and sedimentation rates. The ISEGS project would adopt a low impact development design for grading related to stormwater flow. The low impact development design would maintain natural drainage patterns to the extent practicable. All stormwater flow would be consistent with the guidance developed by San Bernardino County.

As a new structure, the Ivanpah Substation would result in additional impacts to water resources during operation and maintenance relative to preconstruction conditions. As described above, the Ivanpah Substation would be fenced and co-located in the construction logistics area for the ISGES project. The ISEGS project would use low-impact development design and maintain existing drainage to the extent practicable. However, there would be impacts associated with alteration of surface drainage patterns at the Ivanpah Substation and hazards associated with flooding. These impacts are described below. -The CEC is the lead agency for the ISEGS project. To ensure protection of water quality during construction and operation of the ISEGS project, the CEC is requiring ISEGS to prepare and submit a Drainage, Erosion, and Sedimentation Control Plan (DESCP) and to prepare a SWPPP. As part of MM W-6, EITP will be required to submit copies of the approved DESCP and SWPPP to CPUC three months prior to the start of construction.

As discussed above in the construction section, alteration of the course of a stream due to modification of surface drainage patterns during construction of the Ivanpah Substation could result in localized erosion and downstream flooding. If these impacts were to occur during construction and were not appropriately addressed, they would be minor, localized, and long term throughout the operation and maintenance of the Ivanpah Substation.

NEPA Summary

With respect to hydrology, construction of the proposed project would result in impacts ranging from minor to moderate. Impacts would generally be local in extent. The applicant would take precautions to prevent erosion and sedimentation during construction and operation, including avoiding active stream and drainage channels (APMs W-1, W-4), providing erosion plans as part of the contractor bidding process (APM W-2), designing tower footings to prevent scour (APM W-3), requiring design measures to collect and divert runoff to prevent excessive erosion (APMs W-5, W-6, W-7, W-8), and, as required by law, developing and implementing a SWPPP. However, special consideration needs to be taken because the proposed project would be sited on active alluvial fans. Implementation of MM W-1 would ensure that all local and regional erosion control plans and water quality permits would be adhered to. MM W-3 would require the applicant to model any changes in flow paths that would occur as a result of construction of the proposed project and mitigate any effects with a channel system. MM W-6 would ensure that appropriate erosion control measures are implemented at the Ivanpah Substation. Implementation of these MMs would reduce any impacts due to erosion and sedimentation to minor, localized levels.

The potential for the introduction of hazardous contamination into surface water resources during construction of the proposed project would be minor, localized, and short term. During construction, the applicant would implement a hazardous materials and waste handling management program (APM HAZ-2) that would have emergency release response procedures to address any potential release of hazardous materials (APM W-10), and would properly dispose of hazardous materials (APM W-12). To prevent any potential disturbance to existing utilities and pipelines, the applicant would use a service to identify underground utility lines (APM W-13) before construction began. The applicant would also implement a SWPPP (APM W-9). To further decrease the potential to contaminate water resources, they would avoid stream channels (APM W-1) and conduct a worker environmental awareness program (APM W-11). For operations at the substations, they would implement SPCC plans (APM W-14), which are designed to prevent or minimize spills. With the successful execution of the APMs listed above, construction of the proposed project would not result in short- or long-term violations of federal or state water quality standards.

Construction projects have the potential to alter the flow or degrade the quality of groundwater to natural systems or wells for private or municipal use. Because the depth to groundwater at the proposed project site is ~~more than~~ between 100 and 500 feet, there would be no impacts to groundwater quality due to construction and operation of the proposed project.

~~The proposed project would use water for dust suppression during construction. During the operation phase, water would be used at the substation for sanitary purposes and fire control during emergencies. The applicant has stated that no wells would be drilled for the proposed project's water supply. As part of MM W-2 (Water Use Plan), the applicant would be required to identify the quantity and sources for all water to be used during construction and operation. MM W-2 also sets maximum water use limits for the construction and operation phases of the proposed project. Despite implementation of these measures, impacts to groundwater would be minor to moderate and localized, until the water source is known.~~

The proposed project would use water for dust suppression during construction. The potential for lowering local groundwater levels during construction would be negligible, localized, and short term. The applicant has agreed to a maximum water use of between 32,000 and 40,000 gpd for the duration of project construction. This equates to between 30.6 and 38.3 acre-ft/yr and a pump rate of 35 gpm. As described in Section 3.8.1.5, the applicant has arranged to acquire this water from existing wells at the Molycorp Mine Mountain Pass facility within the Ivanpah and Shadow Valley fresh water production well fields. The proposed project would require 35 gpm, or 2.3 percent, of the available water from the well fields. Molycorp currently uses only a small fraction of this water and has agreed that there would be sufficient water available for the proposed project. To limit excessive groundwater withdrawals, MM W-2 sets maximum water use limits for the construction and operation phases of the proposed project. By limiting the maximum water use, construction of the proposed project would result in a negligible, localized, and short term effect to groundwater levels.

Impacts during operation and maintenance would be similar to those of current operations of the existing transmission line.

CEQA Significance Determinations

IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater
Less than significant with mitigation

Although the proposed project could pose a potential adverse impact on surface and groundwater resources due to hazardous contamination during construction and operation and maintenance of the lines and substation, the applicant would undertake multiple measures to minimize this potential. As discussed above, the applicant would implement a hazardous materials and waste handling management program (APM HAZ-2) that would outline proper handling, storage, and disposal of hazardous materials as well as detail how to address any potential release. The applicant would also undertake measures to avoid operating in stream channels (APM W-1) and implement a SWPPP (APM W-9). For operations, they would implement an SPCC plan at their substations. These measures would reduce the potential for spills of hazardous materials and outline cleanup measures to be implemented should a spill occur.

In addition, the hydrology of the area would prevent any spill that occurred from migrating quickly or far. Because precipitation levels are low and groundwater in this region is located ~~more than~~ between 100 and 500 feet below the surface, it is highly unlikely that any release would migrate to groundwater. In addition, there are few permanent surface waters, so there are few that could be adversely affected. However, an unanticipated spill of vehicle oil or mud slurry could occur. With proper implementation of MM W-1 (Erosion Control Plan and Compliance with Water Quality Permits) and MM W-6 (DESCP, SWPPP, and Grading and Storm Water Management Plan for Ivanpah Substation), the potential impact on surface water quality from erosion would be reduced to less than significant levels.

IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge
~~*Potentially*~~*Less than significant with mitigation*

The proposed project could have small impacts on ~~the~~ local ~~water table~~groundwater levels and on aquifer recharge processes by altering surface water drainages and ~~exceeding current~~ increasing groundwater withdrawal over current conditions. Construction activities could ~~shift~~modify subsurface hydrology in such a way that local wells or aquifers might not receive groundwater inputs at the same rate as prior to construction. ~~Increased~~ The small increase in impermeable surfaces at the Ivanpah Substation could limit surface water absorption processes locally. The altered runoff patterns ~~could decrease~~should not affect local groundwater supply and recharge ~~and~~or deplete water available for surface waterbodies. Since transmission line construction would replace existing structures, construction would not change the existing impervious area. The construction and operation of the new Ivanpah Substation would result in an increase in impervious area, but this area would be ~~relatively~~ small relative to the surrounding pervious area, which ~~could~~would continue to receive the surface water runoff.

During construction, the applicant would avoid stream channels (APM W-1), collect and divert runoff (APM W-6), and develop ditch and drainage design (APM W-7). These measures would allow for infiltration of surface water and subsequent groundwater recharge at rates consistent with preconstruction conditions.

~~The applicant stated that water would be used for dust suppression during construction. Depending on the quantity and sources to be used, this could decrease local groundwater supply and recharge. As part of MM W-2 (Water Use Plan), the applicant would identify quantities and sources of water to be used during each phase of the proposed project. MM W-2 also sets maximum water use limits for the construction and operation phases. However, because the source of the water to be used during construction is currently unknown, at this point the possibility that the impact on groundwater supplies could be significant must be considered.~~

The applicant stated that water would be used for dust suppression during construction. The potential for lowering local groundwater levels during construction would be negligible, localized, and short term. The applicant has agreed to a maximum water use of between 32,000 and 40,000 gpd for the duration of project construction. This equates to between 30.6 and 38.3 acre-ft/yr and a pump rate of 35 gpm. As described in Section 3.8.1.5, the applicant has arranged to acquire this water from existing wells at the Molycorp Mine Mountain Pass facility within the Ivanpah and Shadow Valley fresh water production well fields. The proposed project would require 35 gpm, or 2.3 percent, of the available water from the well fields. Molycorp currently uses only a small fraction of this water and has agreed that there would be sufficient water available for the proposed project. To limit excessive groundwater withdrawals, MM W-2 sets maximum water use limits for the construction and operation phases of the proposed project. By limiting the maximum water use, construction of the proposed project would result in less than significant impacts.

IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns
Less than significant with mitigation

There would be potential for increased erosion or siltation on site or off site due to project construction and operation and maintenance activities. Construction activities causing ground disturbance, such as grading, may change natural runoff patterns, thereby affecting natural erosion and siltation processes. Water used for dust suppression during construction could suspend and transport more sediment than is typically moved in the arid climate. In the Ivanpah Valley, sediment load transport to the surface of Ivanpah Dry Lake is part of natural processes. Assessment of impacts due to erosion and siltation includes analysis for reducing sediment contribution downstream. The applicant has stated that construction equipment would be kept out of flowing stream channels except when absolutely necessary for crossings (APM W-1). Also, transmission towers would be located to avoid active drainage channels (APM W-4). As part of the proposed project construction, the applicant would collect and divert runoff (APM W-6), develop ditch and drainage design (APM W-7), and minimize cut and fill slopes (APM W-8). All these measures would help minimize changes to surface drainage patterns and reduce stormwater velocity where changes would occur, therefore preventing excessive erosion and siltation. Because MM W-1 (Erosion Control Plan) and MM W-6 (DESCP and SWPPP for Ivanpah Substation) would ensure that all BMPs and county plan erosion practices are adhered to, erosion and siltation levels would be kept consistent with preconstruction conditions, thereby reducing this impact to less than significant levels.

IMPACT HYDRO-4: Altered Course of Stream or River due to Modification of Surface Drainage Patterns
Less than significant with mitigation

The proposed project could cause alteration of the course of a stream due to modification of surface drainage patterns. Construction activities causing ground disturbance and alteration of natural drainage patterns could cause a change in the hydrologic inputs to a stream, thus affecting the flow volume or route. Changes to surface contours could be permanent and could affect the stream flow over the long term. As part of the proposed construction process, the applicant would keep equipment out of stream channels (APM W-1), consider erosion control plans during the bidding process (APM W-2), and avoid placement of transmission poles within active drainage channels (APM W-4). These measures would reduce temporary impacts to flowing steams and permanent impacts to existing drainage channels.

However, these measures do not address construction impacts to existing drainage channels. MM W-3 (On-Site Flow Model) requires the applicant to predict any alteration in flow paths as a result of construction of the proposed project and establish a channel system to mitigate any impacts associated with altered flow paths. Since the project would be located on an active alluvial fan where channels and dry washes are integral to site drainage, preservation of these features is an important mitigation measure. Construction across the Ivanpah Dry Lake would result in disturbance to the playa surface and normal flooding processes. MM W-4 (Restoration of Dry Lake) requires the applicant to restore the lake surface to preconstruction conditions, therefore reducing this impact to less than significant levels.

IMPACT HYDRO-5: Modified Runoff Characteristics That Exceed Existing Stormwater Systems, Possibly Leading to Flooding or Inundation by Mudflow
Less than significant with mitigation

The proposed project would be unlikely to cause flooding or inundation by mudflow, but due to the severity of potential impact from these events, the impact from flooding or inundation is potentially significant. Construction activities causing ground disturbance could change natural runoff patterns, thereby affecting volume and flow of surface and subsurface waters and possibly affecting flooding patterns of local waterways. The proposed project area is in a region known for active alluvial fans, which are vulnerable to flooding and debris flows in times of heavy rain. Because alluvial material is loose, the sediments of alluvial fans can move and shift, particularly during heavy precipitation events such as flash floods. Within an alluvial fan, there are usually established drainage patterns for normal precipitation events. However, if a flash flood event occurred at the proposed project site and the natural drainages were overtopped, there would be sheet flow over some or most of the proposed site.

As part of construction of the proposed project, the applicant would keep construction equipment out of flowing streams (APM W-1), avoid tower placement in active drainage channels (APM W-4), create a system of diversion dikes around any sites where active channels could not be avoided (APM W-5), collect and divert runoff from roadways (APM W-6), develop ditches and drainage devices to reduce stormwater speed (APM W-7), and, as required by law, implement a SWPPP (APM W-9). Even with these measures, construction activities could change natural runoff patterns, thereby affecting waterbody volume and flow, possibly affecting flooding patterns of local waterways. As mentioned, active alluvial fans are vulnerable to flooding and debris flows in times of heavy rain. Small, unmapped drainages in the active portions of alluvial fans are essential to effective drainage. As a part of MM W-5 (Hydrological Model of Alluvial Fan), the applicant would analyze all alluvial fans in the project area to determine the most active sections. Following this analysis, proposed project components would be sited on the least active areas of the fans to reduce the possibility of floods or debris flows, therefore reducing this impact to less than significant levels.

IMPACT HYDRO-6: Substantially Degrade Water Quality
Less than significant with mitigation

The proposed project could degrade water quality by increasing erosion or sedimentation in surface waters or through the introduction of hazardous materials into surface waters. Potential impacts from the introduction of hazardous materials would be less than significant without mitigation. Implementation of MMs W-1, W-3, and W-6 would reduce potential impacts due to erosion and sedimentation to less than significant levels.

IMPACT HYDRO-7: Placement of Structures within a 100-year Flood Hazard Area
Less than significant without mitigation

Transmission line tower footings would be constructed within a 100-year flood hazard area through the Ivanpah Dry Lake, as shown in Figure 3.8.2. Additionally, the telecommunications line would cross through a 100-year flood hazard zone near Nipton Road. Although the Ivanpah Substation would be located within a FEMA Zone D, which is classified as areas with possible flood hazards, this facility would not be located in a 100-year flood hazard zone... Due to the relatively flat topography of the flood hazard areas, the risk associated with this hazard would be minor. If flood waters were to pool during extreme precipitation events, they would likely accumulate slowly, allowing ample time for the construction staff to vacate the area. The applicant would design tower footings to withstand scour and inundation from a 100-year flood (APM W-3). This measure would ensure that flooding at tower footings would not pose a safety risk. This impact would be less than significant without mitigation.

IMPACT HYDRO-8: Exposure to a Significant Risk of Flooding
Less than significant with mitigation

The proposed project has limited potential to expose people or structures to a significant risk of loss, injury, or death due to flooding. There are no dams in the area, so there is no impact associated with dam failure. However, the project area is in a region with active alluvial fans, which are vulnerable to flooding and debris flows in times of heavy rain. Alluvial fan debris flows can carry sediments, cobbles, and even large objects such as trees, cars, and small buildings, thus presenting a threat to surrounding people and property. If project facilities were in the path of flood flows, there would be a slight possibility the facilities could be picked up and carried with the debris flow, presenting a threat to the construction crews, surrounding environment, and local communities. However, it is unlikely that project facilities or construction equipment would actually impede or redirect a flood flow.

As part of construction of the proposed project, the applicant would keep construction equipment out of flowing streams (APM W-1), avoid tower placement in active drainage channels (APM W-4), create a system of diversion dikes around any sites where active channels could not be avoided (APM W-5), and develop ditches and drainage devices to reduce stormwater speed (APM W-7). These measures would ensure that active drainage channels were not hindered by construction activity. As mentioned above, small, unmapped drainages in active portions of alluvial fans are essential to effective drainage during extreme precipitation events and flash floods. As a part of MM W-5 (Hydrological Model of Alluvial Fan), the applicant would analyze the fans in the project area to determine the most active sections. Following this analysis, the project facilities would be sited on the least active lobes of the alluvial fans to mitigate against floods or debris flows and their inherent threat to life and property. With proper implementation of MM W-5, there would be a less than significant risk of loss, injury, or death due to flooding.

IMPACT HYDRO-9: Modify Runoff Characteristics, Possibly Leading to Flooding or Inundation by Mudflow
Less than significant with mitigation

Mudflow risks are very similar to the flooding risks described in IMPACT HYDRO-7. It is possible that construction activities or final structures would be placed such that they would impede or redirect mudflows. The proposed project area is located in a region known for active alluvial fans, which are vulnerable to flooding and debris flows in times of heavy rain. However, it is unlikely that project facilities or construction equipment would actually impede or redirect a flood flow. The applicant would keep construction equipment out of flowing streams (APM W-1), avoid tower placement in active drainage channels (APM W-4), create a system of diversion dikes around any sites where active channels could not be avoided (APM W-5), and develop ditches and drainage devices to reduce stormwater speed (APM W-7). These measures would ensure that active drainage channels were not hindered by construction activity. As mentioned above, small, unmapped drainages in active portions of alluvial fans are essential to effective drainage during extreme precipitation events and flash floods. As part of MM W-5 (Hydrological Model of Alluvial Fan), the applicant would analyze the fans in the project area to determine the most active sections. Following this analysis, the project facilities would be sited on the least active lobes of the alluvial fans to mitigate against floods or debris flows and their inherent threat to life and property. With proper implementation of MM W-5, there would be a less than significant risk of loss, injury, or death due to mudflow.

3.8.3.6 No Project / No Action Alternative

Under the No Project Alternative, the proposed action would not be implemented. Therefore, the No Project Alternative would have no impact on existing water resources in the proposed project area.

3.8.3.7 Transmission Alternative Route A

Transmission Line Alternative A is similar to the proposed project in that it is located in areas of similar water resources and topography. All impacts would be direct and adverse. Minor, localized, short-term impacts related to

this alternate route would include those associated with surface and groundwater contamination and lowering of the local water table. Minor ~~to moderate~~, extensive, long-term impacts related to this alternate route would include those associated with ~~lowering of the local water table due to water use during construction and routine washing of the lines and~~ redirection or modification of flood flows by construction equipment or tower footings. With the implementation of APMs W-1 through W-14 and MMs W-1 through W-5, less than significant impacts related to this alternate route would include those associated with the alteration of surface drainage patterns, and increased erosion and siltation due to the alteration of drainage patterns, water quality, and flooding.

3.8.3.8 Transmission Alternative Route B

Transmission Line Alternative B is similar to the proposed project in that it is located in areas of similar water resources and topography. All impacts would be direct and adverse. Minor, localized, short-term impacts related to this alternate route would include those associated with surface and groundwater contamination and lowering of the local water table. Minor ~~to moderate~~, extensive, long-term impacts related to this alternate route would include those associated with ~~lowering of the local water table due to water use during construction and routine washing of the lines and~~ redirection or modification of flood flows by construction equipment or tower footings. With the implementation of APMs W-1 through W-14 and MMs W-1 through W-5, less than significant impacts related to this alternate route would include those associated with the alteration of surface drainage patterns, and increased erosion and siltation due to the alteration of drainage patterns, water quality, and flooding.

3.8.3.9 Transmission Alternative Route C

Transmission Line Alternative C is similar to the proposed project in that it is located in areas of similar water resources and topography. All impacts would be direct and adverse. Minor, localized, short-term impacts related to this alternate route would include those associated with surface and groundwater contamination and lowering of the local water table. Minor ~~to moderate~~, extensive, long-term impacts related to this alternate route would include those associated with ~~lowering of the local water table due to water use during construction and routine washing of the lines and~~ redirection or modification of flood flows by construction equipment or tower footings. With the implementation of APMs W-1 through W-14 and MMs W-1 through W-5, less than significant impacts related to this alternate route would include those associated with the alteration of surface drainage patterns, and increased erosion and siltation due to the alteration of drainage patterns, water quality, and flooding.

3.8.3.10 Transmission Alternative Route D and Subalternative E

Transmission Line Alternative D and Subalternative E are similar to the proposed project in that they are located in areas of similar water resources and topography. All impacts would be direct and adverse. Minor, localized, short-term impacts related to this alternate route would include those associated with surface and groundwater contamination and lowering of the local water table. Minor ~~to moderate~~, extensive, long-term impacts related to this alternate route would include those associated with ~~lowering of the local water table due to water use during construction and routine washing of the lines and~~ redirection or modification of flood flows by construction equipment or tower footings. With the implementation of APMs W-1 through W-14 and MMs W-1 through W-5, less than significant impacts related to this alternate route would include those associated with the alteration of surface drainage patterns, and increased erosion and siltation due to the alteration of drainage patterns, water quality, and flooding.

These alternatives are co-located with an existing transmission line through Ivanpah Dry Lake and, therefore, would not additionally contribute to the disturbance of surface drainage patterns on the dry lake bed.

3.8.3.11 Telecommunication Alternative (Golf Course)

The Golf Course Telecommunication Alternative is similar to the proposed project in that it is located in areas with similar water resources and topography. All impacts would be direct and adverse. Minor, localized, short-term impacts related to this alternate route would include those associated with surface and groundwater contamination and lowering of the local water table. Minor ~~to moderate~~, extensive, long-term impacts related to this alternate route would include those associated with ~~lowering of the local water table due to water use during construction and routine washing of the lines and~~ redirection or modification of flood flows by construction equipment or tower footings. With the implementation of APMs W-1 through W-14 and MMs W-1 through W-5, less than significant impacts related to this alternate route would include those associated with the alteration of surface drainage patterns, and increased erosion and siltation due to the alteration of drainage patterns, water quality, and flooding. The Golf Course Telecommunication Alternative avoids Ivanpah Dry Lake; therefore, surface drainage patterns on the dry lake bed would not be disturbed.

3.8.3.12 Telecommunication Alternative (Mountain Pass)

The Mountain Pass Telecommunication Alternative is similar to the proposed project in that they are located in the same vicinity and would have similar impact on water resources. This alternative extends into the foothills of the Clark Mountain Range, while the proposed project route crosses the Ivanpah Valley. All impacts of the Mountain Pass Telecommunication Alternative would be direct and adverse. Minor, localized, short-term impacts related to this alternate route would include those associated with surface and groundwater contamination and lowering of the local water table. Minor ~~to moderate,~~ extensive, long-term impacts related to this alternate route would include those associated with ~~lowering of the local water table due to water use during construction and routine washing of the lines and~~ redirection or modification of flood flows by construction equipment or tower footings. With the implementation of APMs W-1 through W-14 and MMs W-1 through W-5, less than significant impacts related to this alternate route would include those associated with the alteration of surface drainage patterns and increased erosion and siltation due to alteration of drainage patterns, water quality, and flooding.

3.8.4 Mitigation Measures

MM W-1: Erosion Control Plan and Compliance with Water Quality Permits. The applicant will employ a professional engineer to develop and implement an Erosion Control Plan and monitor construction activities to ensure compliance with federal and state water quality permits. The Erosion Control Plan will comply with or exceed BMPs commonly used on projects in the California/Nevada area and those outlined in county plans. Copies of the Erosion Control Plan will be submitted to CPUC. MM W-1 will also serve to strengthen APMs W-1, W-4, and W-5 to include all intermittent and ephemeral streams and desert washes as depicted on USGS and NHD mapping and those identified during the applicant's field reconnaissance surveys. The intent of this MM is to minimize the impact of construction on surface water quality in the basins surrounding the proposed project. This MM will apply to all construction sites for the duration of construction and restoration activities.

~~**MM W-2: Water Use Plan.** The applicant will develop a Water Use Plan that specifies the quantities and sources for all water to be used during construction, operation, and maintenance of the proposed project. The applicant has indicated that water will be used for dust suppression during construction and for toilet flushes and drinking water at the substation. In the applicant's response to Data Request 10.05, they stated that the daily volume of water needed for dust suppression during construction is unknown because there are numerous variables involved. They estimate that between 30.6 and 38.3 acre feet per annum would be needed for the construction phase of the transmission line. The Water Use Plan will identify the approximate quantity of water to be used for each activity, broken down by phase of the project. The applicant has indicated that water would be supplied by a local vendor or agency. The plan will indicate the water sources to be used for each project phase. For each source, the plan will address the potential impact on the local aquifer. Furthermore, as part of MM W-2, the applicant would limit construction phase water use to a maximum of 45 acre feet per annum and operation~~

~~phase water use to a maximum of 2.5 acre feet per annum. Emergency water uses, including fire suppression, are excluded from these maxima. To the extent feasible, the applicant will use reclaimed water for dust suppression. The Water Use Plan will be submitted to CPUC for review at least three months prior to the start of construction.~~

MM W-2: Water Use Maximum. The applicant has estimated using a maximum of between 32,000 and 40,000 gpd of water for the construction phase of the project. This translates to between 30.6 and 38.3 acre-ft/yr. The applicant has stated that no water would be used during the operational phase of the project. Under MM W-2, the applicant will limit construction phase water use to a maximum of 45 acre feet per annum. The applicant will not use water during the operational phase of the project. Emergency water uses, including fire suppression, are excluded from these maxima. If the applicant requires additional water for construction or operation of the project, the applicant must submit a request to the CPUC and the BLM.

MM W-3: Onsite Flow Model and Channel System. The applicant will employ a hydrologist to develop an Onsite Flow Model to predict any alteration in flow path that would result from construction and operation and maintenance of the proposed project. The applicant will also develop a channel system to prevent erosion and to mitigate altered flow paths. The Onsite Flow Model and channel system design will be submitted to the CPUC for review at least three months prior to the start of construction. The intent of this MM is to ensure that stormwater runoff will not cause flooding. The applicant will monitor the channel system throughout construction to assess effectiveness and ensure compliance with the designed system. Additionally, the applicant will coordinate with BLM and CPUC on model parameters and assumptions used in modeling.

MM W-4: Dry Lake Restoration Plan. The applicant will employ a hydrologist and a restoration specialist to develop a Restoration Plan for disturbance of dry lake beds. The proposed project would cross through Ivanpah Lake. Construction would disturb the flat dry lake bed surface that is used for recreation. The intent of this MM is to ensure that the dry lake bed is restored to preconstruction conditions. The BLM will review the plan prior to the start of construction. The BLM would also assess the success of the restoration and determine whether the Ivanpah Lake surface had been restored to preconstruction conditions. In addition, the applicant will coordinate with the BLM the submission of the plan to the CDFG for CDFG review. The applicant will provide the CPUC with a copy of the Restoration Plan.

MM W-5: Historical Hydrological Model of Alluvial Fan. In the PEA, the applicant completed a historical hydrological model on site area alluvial fan(s) based on similar work on alluvial fans performed near Laughlin, Nevada (House 2005). The applicant extrapolated the data by applying the methodology from the Laughlin area model to the California portion of the project area. This study will be used to determine the active and inactive portions of the alluvial fans in the site area relative to surface water, sediment transport, and flash flooding. Where feasible, the applicant will locate towers, substations, and other permanent site features on inactive portions of the alluvial fan to minimize risk associated with flash flooding and alluvial fan failure.

MM W-6: DESCP, SWPPP, and Grading and Storm Water Management Plan for Ivanpah Substation. ~~The CEC is the lead agency for the ISEGS project. In order to ensure protection of water quality during construction and operation of the ISEGS project, the CEC is requiring ISEGS to prepare and submit a Drainage, Erosion, and Sedimentation Control Plan (DESCP) and to prepare a SWPPP. As part of MM W-6, the~~ The applicant will be required to submit copies of the approved Drainage, Erosion, and Sediment Control Plan (DESCP) and Storm Water Pollution Prevention Plan (SWPPP) to CPUC three months prior to the start of construction, and implement those plans as part of the EITP.

3.8.5 Whole of the Action / Cumulative Action

~~Below is a brief summary of information related to hydrology and water quality in the ISEGS FSA/DEIS prepared by the CEC and the BLM. This section focuses on differences in the ISEGS setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

Information on hydrology and water quality related to the ISEGS project is summarized below. The setting for the ISEGS project is described, followed by summaries of methodologies used and the impact conclusions presented in the CEC's Final Staff Assessment (FSA), FSA Addendum, and Final Decision and the BLM's FEIS. Required conditions of certification and mitigation measures are listed. Some differences between the ISEGS and EITP are noted.

3.8.5.1 ISEGS Setting

Surface Water Resources and Flooding

The ISEGS project would be developed on an alluvial fan at the base of the Clark Mountain Range. Conditions in the Clark Mountain Range are similar to those described in Section 3.8.1.1, "Surface Water Resources and Flooding." During field surveys conducted by Solar Partners I, LLC; Solar Partners II, LLC; Solar Partners IV, LLC; and Solar Partners VIII, LLC (Solar Partners, or the applicant), 1,973 ephemeral washes were mapped within the original ISEGS project area. The amount and size of washes increases moving topographically up the alluvial fan from the southeast to the northwest. This indicates that the greatest amount of stormwater travels at the fastest speeds in the Ivanpah 3 area. Based on wetland and stream delineations conducted by the applicant in 2008, the USACE determined that ephemeral washes on the alluvial fan are not under USACE's jurisdiction under Section 404 of the Clean Water Act.

A key difference between the setting of the Mitigated Ivanpah 3 Alternative and that of the proposed project would be elimination of the drainage features associated with the northern 433-acre portion of Ivanpah Unit 3. As discussed above, the size and number of drainage channels associated with the proposed project is highest in Ivanpah Unit 3. Based on mapping performed by the applicant, as well as observations from site visits conducted by BLM and CEC staff, the largest channels in Ivanpah Unit 3 are located in the northern third of the property, approximately coincident with the 433-acre portion eliminated from development in the Mitigated Ivanpah 3 Alternative. As a result, the potential impacts on the facility from stormwater flows, and the potential impacts of project development on downstream resources, would differ between the proposed project and the Mitigated Ivanpah 3 Alternative.

Groundwater Resources

The ISEGS project would be constructed within the Ivanpah Valley Groundwater Basin, described in Section 3.8.1.2, "Groundwater Resources." Seeps and springs are located upgradient in the Clark Mountains. These features are ephemeral (fed only by precipitation).

The Molycorp Mine, a lanthanide mining and milling operation, discharged contaminated wastewater through a pipeline to evaporation ponds on the Ivanpah Dry Lake between 1980 and 1998. An agreement with the RWQCB requires cleanup and abatement of a groundwater plume that developed below the new evaporation pond, which was in operation between 1988 and 1998.

Applicable Laws, Regulations, and Standards

Due to the variation in project components and location between EITP and ISEGS, different laws, regulations, and standards would apply to ISEGS than those listed for the EITP in Section 3.8.2, "Applicable Laws, Regulations, and Standards." Regulations affecting ISEGS are summarized in Table 3.8-24. Since ISEGS would be developed entirely within California on BLM land, the Nevada regulations associated with the EITP would not apply. ~~However~~In addition, the ISEGS project components and operational features trigger laws, regulations, and standards beyond those required for EITP; these additional components are:

- A power plant that requires process cooling water
- Use of recycled power plant process water for mirror washing

- Groundwater wells that may be used for drinking water
- A septic tank / leach field system for sanitary wastewater
- Hydrostatic testing of the natural gas pipeline and discharge of that water
- Grading of large areas of land

Table 3.8-24 Laws, Regulations, and Standards Applicable to the ISEGS Project

Law, Regulation, or Standard	Description	Project Component
Federal		
RCRA, 40 CFR Part 260 et seq.	A comprehensive body of regulations that give U.S. EPA the authority to control hazardous waste "cradle-to-grave." RCRA covers the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also sets forth a framework for management of non-hazardous solid wastes.	Natural gas pipeline
State		
California Constitution, Article X, Section 2	Requires that the water resources of the state be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use, or unreasonable method of use of water is prohibited.	Power plant process water, mirror washing, groundwater wells
California Water Code Section 13050	Defines "waters of the state."	Power plant process water, mirror washing, ground water wells
California Water Code Sections 13240, 13241, 13242, & 13243, & Water Quality Control Plan for the Lahontan Region (Basin Plan)	The Basin Plan establishes water quality objectives that protect the beneficial uses of surface water and groundwater in the region. The Basin Plan describes implementation plans and other control measures designed to ensure compliance with statewide plans and policies and provide comprehensive water quality planning.	Power plant process water, mirror washing, ground water wells
SWRCB 2003-003-DWQ	This general permit applies to the discharge of water to land that has a low threat to water quality.	Hydrostatic test water, recycled process plant water for mirror washing
California Code of Regulations, Title 22, Division 4, Chapter 15	This chapter specifies Primary and Secondary Drinking Water Standards that set MCLs in terms of TDS, heavy metals, and chemical compounds.	Potable water from new wells
California Code of Regulations, Title 23, Division 3, Chapter 15	This chapter applies to waste discharges to land and requires the Regional Board to issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable.	Hydrostatic test water, recycled process plant water for mirror washing
CEC IEPR; (Public Resources Code, Div. 15, Section 25300 et seq.)	In the 2003 IEPR, the CEC adopted a policy stating it will approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."	Power plant process water
SWRCB Res. No. 68-16	The "Antidegradation Policy" requires that (1) existing high quality waters of the state be maintained until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial uses, and will not result in wastewater quality that is lower than that required by other adopted policies and (2) any activity that produces or may produce a waste	Power plant process water, mirror washing, wells

Table 3.8-24 Laws, Regulations, and Standards Applicable to the ISEGS Project

Law, Regulation, or Standard	Description	Project Component
	or increased volume or concentration of waste, and that discharges or proposes to discharge to existing high quality waters, must meet WDRs that will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained.	
SWRCB Res. 75-58	The Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling states that fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound.	Power plant process water
SWRCB Res. No. 88-63	States that all groundwater and surface water of the state are considered suitable for municipal or domestic water supply with the exception of those waters that meet specified conditions.	Power plant process water, mirror washing, wells
SWRCB Res. 2005-0006	Adopts the concept of sustainability as a core value for SWRCB programs and directs its incorporation in all future policies, guidelines, and regulatory actions.	Power plant process water, mirror washing, wells
SWRCB Res. 2008-0030	Requires sustainable water resources management such as low impact development and climate change considerations in all future policies, guidelines, and regulatory actions. Directs RWQCBs to "aggressively promote measures such as recycled water, conservation, and low impact development Best Management Practices where appropriate and work with Dischargers to ensure proposed compliance documents include appropriate, sustainable water management strategies."	Power plant process water, mirror washing
The California Safe Drinking Water and Toxic Enforcement Act	The California Health & Safety Code Section 25249.5 et seq. prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The RWQCB administers the requirements of the act.	Hydrostatic test water, recycled process plant water for mirror washing
Local		
California Safe Drinking Water Act and San Bernardino County Code Title 3, Division 3, Chapter 6, Public Water Supply Systems	Require public water systems to obtain a Domestic Water Supply Permit. Public water systems are defined as systems providing water for human consumption through pipes or other constructed conveyances that have 15 or more service connections or regularly serve at least 25 individuals daily at least 60 days per year. CDPH administers the Domestic Water Supply Permit program and has delegated issuance of Domestic Water Supply Permits for smaller public water systems in San Bernardino County to the county. Under the San Bernardino County Code, the County Department of Environmental Services monitors and enforces all applicable laws and orders for public water systems with less than 200 service connections. The proposed project would likely be considered a non-transient, non-community water system.	Potable water from new wells
San Bernardino County Title 3, Division 3, Chapter 6, Article 5, Desert Groundwater Management	This article helps the county protect water resources in unregulated portions of the desert, while not precluding use of water resources. This article requires a permit to locate, construct, operate, or maintain a new groundwater well within the unincorporated, unadjudicated desert region of San Bernardino County. CEQA compliance must be completed prior to issuance of a permit, and groundwater management, mitigation, and monitoring may be required as a condition of the permit. The ordinance states that it does not apply to "groundwater wells located on Federal lands unless otherwise specified by interagency agreement." The BLM and	New wells

Table 3.8-24 Laws, Regulations, and Standards Applicable to the ISEGS Project

Law, Regulation, or Standard	Description	Project Component
	county entered into an MOU that provides that the BLM will require conformance with this code for all projects proposing to use groundwater from beneath public lands.	
San Bernardino County Ordinance Code, Title 3, Division 3, Chapter 8, Waste Management, Article 5, Liquid Waste Disposal	Requires the following compliance for all liquid waste disposal systems: (1) compliance with applicable portions of the Uniform Plumbing Code and the San Bernardino County DEHS standards; (2) approval by the DEHS and building authority with jurisdiction over the system; or (3) for alternative systems, approval by the DEHS, the appropriate building official of this jurisdiction, and the appropriate California RWQCB.	Power plant process water, new septic tank and leach field
San Bernardino County Ordinance Code, Title 6, Division 3, Chapter 3, Uniform Plumbing Code	Describes the installation and inspection requirements for locating disposal/leach fields and seepage pits.	New septic tank and leach field

Key:
BLM = Bureau of Land Management
CDPH = California Department of Public Health
CEC = California Energy Commission
CEQA = California Environmental Quality Act
CFR = Code of Federal Regulations
DEHS = Department of Environmental Health
EPA = Environmental Protection Agency
IEPR = Integrated Energy Policy Report
MCLs = Maximum Contaminant Levels
MOU = memorandum of understanding
RCRA = Resource Conservation and Recovery Act
RWQCB = Regional Water Quality Control Board
SWRCB = State Water Resources Control Board
TDS = total dissolved solids
WDRs = Waste Discharge Requirements

3.8.5.2 ISEGS Methodology

CEC's FSA Methodology

In the ISEGS FSA/DEIS, BLM and CEC staff (Staff) reported on existing conditions and assessed impacts to soil and water resources in the same section. Staff evaluated the potential of the project's proposed water use to cause a substantial depletion or degradation of groundwater resources, including beneficial uses. Staff considered compliance with the laws, ordinances, regulations, and standards associated with the project components and location. Staff also considered whether there would be a significant impact under CEQA using the following impact criteria:

- Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding or substantial erosion or siltation on or off site?
- Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
- Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?
- Would the project violate any water quality standards or waste discharge requirements?
- Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table

level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

- Would the project contribute to any lowering of groundwater levels in the groundwater wells of other public or private water users?
- Would the project contribute to any lowering of the groundwater levels such that protected species or habitats would be affected?
- Would the project cause substantial degradation to surface water or groundwater quality?

BLM's FEIS Methodology

The BLM's ISEGS FEIS employs the same methodology as does the combined CEC/BLM FSA/DEIS described above.

3.8.5.3 ISEGS Impacts

CEC's Impact Conclusions

CEC staff determined that construction, operation, and decommissioning of the ISEGS project could impact water resources. The CEC ~~and the BLM have~~has published the impacts listed below related to hydrology and water quality for the ISEGS project. Where impacts were identified, ~~Staff~~ the CEC proposed mitigation measures to reduce impacts to less than significant levels.

Construction Impacts

~~Water Use and Discharge~~

~~Two~~ The two groundwater wells, one primary supply and one backup supply, ~~would~~ were originally planned to be ~~drilled on the northwest~~ located just outside the northeast corner of Ivanpah 1 for all water required for the construction and operation of ISEGS. The Mitigated Ivanpah 3 proposal would move the two wells northeastward to a location within the CLA but on the opposite side of the SCE transmission line and the proposed substation. A groundwater monitoring well ~~would be installed approximately 2,300 feet northeast of the two supply wells~~ to determine any changes in local groundwater levels would be installed between the Ivanpah supply wells and the Primm Valley Golf Club wells. All construction and operational water would be extracted from these two wells with the exception of potable water. Estimated water volumes required for construction and operation of ISEGS are provided below in Table 3.8-5. These estimates were provided in the FSA/DEIS and it is anticipated that the Mitigated Ivanpah 3 proposal's annual water use would be less than or equal to the estimates provided in Table 3.8-5. In addition, the annual water use would not exceed the 100 acre-ft/yr for all three solar plants combined.

Table 3.8-~~3~~5 Estimated Water Volumes Required for Construction and Operation of ISEGS

Construction Phase Water Use	Acre Feet
Potable	9.3
Construction (dust suppression, vehicle washing)	617.4
Hydrostatic testing	0.1
TOTAL CONSTRUCTION PHASE WATER USE	**626.8**
Operation (annual consumption)	
Potable	3.0
Heliostat Operation and Washing	73.5
Mirror Washing*	42.7
TOTAL ANNUAL OPERATIONAL WATER USE	**119.2**

*Mirror washing water would be recycled from heliostat process water

During the construction phase, potable water would be purchased and delivered from a source outside of the project area. During the operation phase, potable water would either be purchased and delivered from a source outside of the project area or pumped from one of the two new wells and purified.

Hydrostatic testing of the pipeline component would require up to 47,000 gallons of water. Discharge of wastewater used for equipment washing and hydrostatic testing would be required. Following the testing process, the water quality would be tested. If the hydrostatic test water were found to be contaminated, it would be transported to an offsite wastewater treatment plant for processing and disposal. If the hydrostatic test water passed an analytical water quality test, it would be allowed to percolate/evaporate on the ISEGS site, in compliance with the SWRCB permits requirements. With the use of BMPs and compliance with all laws, ordinances, regulations, and standards, the ISEGS FSA/DEIS concludes that there would be no significant impact from construction-generated wastewater.

Sanitary wastewater would be disposed of in an onsite septic and leach field system near the administration building in accordance with local and regional regulations. Residual sludge would be removed by a disposal service. Portable toilets at each power block area would be serviced by a local waste management company. No wastewater would be discharged off site.

Groundwater supply could be impacted by water use associated with ISEGS. During construction, groundwater would be used for dust suppression and hydrostatic testing of the pipeline component. The Mitigated Ivanpah 3 would remove the areas from the project footprint where the most intense grading would have occurred and the areas where flash flooding and mass erosion could have occurred. As a result, the Mitigated Ivanpah 3 proposal would result in a slight reduction in water use during construction related to grading and compaction. Since the demand for groundwater would be reduced, the impact to the Ivanpah Valley Groundwater Basin would be less along with the impact to other groundwater wells. The potential impact to groundwater quality would also be less. To minimize impacts to groundwater resources, the Staff would require ISEGS to comply with SOIL&WATER-3, -4, and -6, described in Section 3.8.5.4, "ISEGS Conditions of Certification / Mitigation Measures." The project would use air-coolers and recycle the maximum amount of process water in an effort to minimize freshwater extraction from local groundwater resources.

Due to the distance, upgradient aspect, and ephemeral nature of the seeps and springs, the ISEGS FSA/DEIS concludes that groundwater extraction associated with construction of the proposed project would not result in significant impact to seeps or springs.

Extraction of groundwater can cause an existing source of contamination, such as the Molycorp Mine evaporation pond plume on the Ivanpah Dry Lake, to change behavior. If the extraction of groundwater were to change the topography of the subsurface water table, it could result in the plume flowing in a different direction. The applicant conducted groundwater modeling to determine whether groundwater extraction related to construction and operation of the ISEGS project would result in changes to the gradient and velocity of the evaporation pond plumes. The study concluded that changes would be negligible; therefore, the ISEGS FSA/DEIS concludes that the project would not result in significant impacts to water quality or remediation efforts.

Operational Impacts

The operational impacts to groundwater resources are consistent with the construction impacts described above or the ISEGS project. Operational process water would be treated in an oil/water separator and then stored for later treatment and use in the steam boiler. Process water would be reused to the extent practical. During operation, groundwater would be used for the power plant process and routine washing of solar panels. The Mitigated Ivanpah 3 Alternative would result in a slight reduction in water use during operations related to mirror washing and boiler makeup. To minimize impacts to groundwater resources, the Staff would require ISEGS to comply with SOIL&WATER-3, -4, and -6, described in Section 3.8.5.4, "ISEGS Conditions of Certification / Mitigation Measures."

Operation of ISEGS could result in degradation of water quality due to discharge of eroded sediments, release of hazardous materials, and use of recycled process plant water for mirror washing. In addition, recycled mirror washing water would introduce certain mineral compounds. The applicant calculated that only minor mineral buildup would develop on site and no wastewater would flow off site. Degradation of water quality could occur if the ISEGS project were to cause an increase in suspended sediment load in stormwater. Likewise, if erosion control measures were too limiting, they could reduce the amount of sediment transported to the Ivanpah Playa relative to preconstruction conditions. The ISEGS applicant concluded that the project would not result in any net change in sediment transport to downstream features. The Staff performed their own sediment transport model and reached the same conclusion. They concluded that there would be no net change in sediment transfer because there would not be a significant increase in stormwater velocity, and that stormwater flowing into the site is typically carrying a full sediment load and therefore is unable to suspend more material.

Operation of ISEGS could result in increased stormwater runoff due to modifications of natural precipitation patterns. In addition, recycled mirror washing water would introduce more water than is normally present on the site. This could result in more downstream flooding. Natural precipitation patterns would be modified by the proposed project. However, the Mitigated Ivanpah 3 proposal would reduce potential stormwater and sedimentation impacts, including the potential for scour across the site in general and scour affecting heliostat pylons in particular. Since the Mitigated Ivanpah 3 proposal reduces the total project acreage by 476 acres, the potential for scour to cause heliostat instability and failure in the northern portion of the project area, where the potential for loss was greatest, would be reduced. In addition, the portion of the project area extending into the Gas Line Gulch alluvial fan channel has been reduced; therefore, the potential for wind and water erosion of soil has also been reduced. The ISEGS applicant would implement low impact development principles in their stormwater design plan. The proposed stormwater plan would maintain natural drainage features and patterns to the maximum extent practicable. Stormwater and sediment control plans would be consistent with San Bernardino County, FEMA, and Clark County guidelines. Around power blocks, the ISEGS applicant would construct embankments, fill, and drainage channels to divert flow around the blocks, preventing scour. The roughness and infiltration potential of the ground affects the volume and speed of stormwater flow. Earthmoving, compaction, and use of dust suppression during the construction, operation, and decommissioning of ISEGS could modify the potential of the ground to slow and accept stormwater.

The applicant proposes to use vehicles with low impact tires or tracks to prevent excessive compaction from vehicle travel. However, the ISEGS FSA/DEIS states that, even with these measures, compaction due to vehicle travel would likely increase erosion. The ISEGS applicant conducted modeling of stormwater runoff during a 100-year storm event and concluded that peak flow would increase by 4.48 percent and overall discharge would increase by 1.68 percent as a result of the construction and operation of the ISEGS project. The ISEGS FSA/DEIS concludes that this would be a less than significant impact to local hydrology when compared with the volume and velocity of stormwater that flows onto the proposed project site.

Storm events could cause breakage of project components and transport of these materials downstream, resulting in impacts to water resources. Because the ISEGS project would be constructed using low impact development, there would be no mechanisms to divert stormwater away from heliostat fields. Heliostat units would be mounted on poles in relatively soft alluvium sediments that would be subject to scour and collapse during weather events. The heliostat structure, mirror, and wiring could be transported downstream. A perimeter fence would capture large pieces but small mirror fragments could be transported beyond the project site. The Staff conducted an analysis to determine the potential damage related to stormwater scour during 10- and 100-year storm events and concluded that these storms could result in the failure of 4,000 and 32,000 heliostats, respectively. Staff concluded that 6 to 9 feet of scour could occur at the project site during storm events. Staff requires the applicant to comply with Condition of Certification SOIL&WATER-5 (reinforcing heliostats to withstand up to 6 feet of scour) to minimize impacts from broken heliostat. By applying this Condition of Certification, the number of broken heliostats during 10- and 100-year events would be reduced to 10 and 50 heliostats, respectively.

With proper installation of poles to prevent failure, Staff concluded that effects of erosion and stormwater flow to water resources on and off the site can be mitigated through the implementation of Conditions of Certification SOIL&WATER-1, -2, and -5.

Discharge of wastewater can result in adverse effects to water resources. With the implementation of Conditions of Certification SOIL&WATER-7 and -8, the Staff concluded that no significant impacts to water resources would occur due to operation of the ISEGS project.

Decommissioning Impacts

The ISEGS project would be decommissioned at the end of its 50-year life by removing all facilities to 3 feet below grade, restoring original contours, and revegetating the site. The ISEGS FSA/DEIS states that this removal could cause "substantial disturbance" to water resources. However, with the adoption of the resource protection plans included in construction, the ISEGS FSA/DEIS concludes that impacts to water resources would be less than significant.

BLM's FEIS Impact Conclusions

Construction Impacts

The applicant has proposed a Low Impact Development approach that would minimize the amount of necessary grading and site disturbance by allowing stormwater to flow through the facility using natural drainages. In the Mitigated Ivanpah 3 Alternative, the northern portion of Ivanpah Unit 3, which is the area requiring the most extensive grading, would not be included within the project footprint. The acreage of grading required in the heliostat fields for the Mitigated Ivanpah 3 Alternative would be reduced from 170 to 20 acres, a reduction of approximately 88 percent. Therefore, with respect to potential soil erosion caused by grading, impacts associated with the Mitigated Ivanpah 3 Alternative are substantially lower than those for the proposed project.

The Mitigated Ivanpah 3 Alternative would also reduce the acreage of active drainage pathways, which are designated as Waters of the State, that would be affected by the proposed project. In the proposed project, a total of 198 acres of drainages are present, and the elimination of the northern portion of Ivanpah Unit 3 would reduce this acreage to 174 acres, a reduction of approximately 9 percent. By implementing the Low Impact Development construction approach, only a portion of these drainages would be affected by construction traffic and placement of heliostats, so the exact reduction in affected acreage that would be accomplished through the Mitigated Ivanpah 3 Alternative cannot be quantified. However, it can be assumed that the reduction of the affected acreage would be on the same scale as the reduction of the total acreage, or approximately 9 percent.

Potential impacts associated with stormwater damage to facility infrastructure and modification of downstream sedimentation and erosion characteristics would be the same for the construction, operations, and closure/decommissioning phases of both the proposed project and the Mitigated Ivanpah 3 Alternative. These impacts, and the relative comparisons between the proposed project and the Mitigated Ivanpah 3 Alternative, are addressed under operations impacts below.

The final issues associated with soil and water resources include potential impacts to groundwater resources, including the amount of groundwater available, as well as potential impacts to groundwater quality. The amount of water that would be used for any given period for construction of the proposed project would be the highest during construction of Ivanpah Unit 3, approximately 200 acre-ft/yr, compared with approximately 100 acre-ft/yr for Ivanpah Units 1 and 2. The water volume required for Ivanpah Unit 3 would be higher due to the need for water to be used for dust control for the extensive grading needed in Ivanpah Unit 3. In the Mitigated Ivanpah 3 Alternative, the acreage of grading would be reduced from 170 acres to 20 acres. Therefore, the peak water usage period for construction of Ivanpah Unit 3 in the Mitigated Ivanpah 3 Alternative would be much shorter than that for the proposed project. Because the duration of water use for construction would be reduced for the Mitigated Ivanpah 3 Alternative, potential groundwater use conflicts would be lower than for the proposed project.

Potential sources of groundwater contamination during construction would be the same for the proposed project and the Mitigated Ivanpah 3 Alternative, but because the duration of construction would be reduced from 48 months to 40 months for the Mitigated Ivanpah 3 Alternative, the risk of contamination occurring would be less than for the proposed project.

The source of water for construction, operations, and closure/decommissioning of the Mitigated Ivanpah 3 Alternative would be slightly different from the source for the proposed project. In the Mitigated Ivanpah 3 Alternative, the location of the water production wells would be approximately 2,400 feet northwest of their location in the proposed project. This location would be farther from the wells operated by the Primm Valley Golf Course, and would therefore be less likely to affect those wells. Therefore, although the location of the water source would be slightly different in the Mitigated Ivanpah 3 Alternative, the change in the location of the water production wells would not affect overall groundwater availability.

Operational Impacts

The location of the Mitigated Ivanpah 3 Alternative on the active alluvial fan would remain approximately the same, and the project would be constructed with the same Low Impact Development approach. However, the potential for impacts would be reduced from those of the proposed project because the northern portion of Ivanpah Unit 3, which is the area determined to present the largest potential stormwater damage risk, would be eliminated in the Mitigated Ivanpah 3 Alternative. Although the project acreage would be reduced by approximately 12.5 percent, the stormwater damage risk would be reduced by a larger amount because the 12.5 percent of the area eliminated would be the area that has the largest and most active drainages channels. The proposed Storm Water Damage Monitoring and Response Plan, applied to the Mitigated Ivanpah 3 Alternative in the same manner as to the proposed project, would help to ensure that stormwater damage impacts do not occur, or are addressed and mitigated when they do occur.

Similar to construction water use, the only differences in operational water use between the Mitigated Ivanpah 3 Alternative and the proposed project would be a small change in the location of the water production wells, and a reduction in the amount of water needed to clean heliostats. As stated in the discussion of construction impacts (above), the change in the location of the wells in the Mitigated Ivanpah 3 Alternative would not result in any change to potential water use impacts. By reducing the number of heliostats from 214,000 to 173,500 (a reduction of 19 percent), the amount of water used for heliostat washing would also be reduced by approximately 19 percent. Therefore, potential water use impacts associated with operation of the Mitigated Ivanpah 3 Alternative would be lowered by 19 percent compared with the proposed project.

Decommissioning Impacts

The soil and water impacts associated with closure and decommissioning of the Mitigated Ivanpah 3 Alternative would be similar to those described for construction above. Because decommissioning would include a smaller area, and have a shorter duration, the Mitigated Ivanpah 3 Alternative would have a reduced potential for water use, water quality, and soil erosion impacts than the proposed project.

3.8.5.4 ISEGS Conditions of Certification / Mitigation Measures

CEC Conditions of Certification

The ISEGS FSA/DEIS recommends that the following ~~Conditions of Certification~~ conditions of certification be required by the CEC and the BLM to lessen impacts to hydrology and water quality if the project is approved. Since the ISEGS document presented water and soil resources in one section, the MMs listed below apply to both resource areas.

SOIL&WATER-1 requires the project applicant to develop a Drainage, Erosion, and Sedimentation Control Plan (DESCP) to ensure protection of water quality and soil resources.

SOIL&WATER-2 requires the applicant to develop an industrial SWPPP that meets the requirements specified in Appendices B, C, and D.

SOIL&WATER-3 requires the applicant to ensure compliance with state and local laws, ordinances, regulations, and standards during construction of the onsite groundwater wells.

SOIL&WATER-4 requires the applicant to limit construction water use to 100 AFY.

SOIL&WATER-5 requires the applicant to design the project such that the heliostats are reinforced to withstand 6 feet of scour. The applicant would develop a Stormwater Damage Monitoring and Response Plan, which would include a strategy to clean up and mitigate broken or transported heliostats. Also under this MM, the applicant would be required to establish a baseline and monitor for changes to the surface of Ivanpah Dry Lake. This MM also requires the applicant to develop standards and procedures for reassessing the proposed stormwater management plan if it does not perform as planned.

SOIL&WATER-6 requires the applicant to comply with San Bernardino County's Desert Groundwater Management Ordinance. This includes developing a groundwater-level monitoring and reporting plan and integrating with the Primm Valley Golf Course's existing groundwater monitoring and reporting program.

SOIL&WATER-7 requires the applicant to ensure that the collection and recycling of process wastewater would be managed in compliance with applicable laws, ordinances, regulations, standards, and BMPs.

SOIL&WATER-8 provides requirements for the installation of the proposed septic tank and leach field.

BLM Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the CEC/BLM FSA/DEIS. The summary of the FEIS indicates that mitigation measures SOIL&WATER-1, 2, 7, and 8 are consistent with state regulations; SOIL&WATER-3 is consistent with county regulations; and SOIL&WATER-4, 5, and 6 are CEC and BLM requirements.

3.8.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses related to hydrology and water quality were based on similar significance criteria that evaluated the extent to which the proposed projects would impact these resources.

For EITP, CPUC/BLM concluded that the project's impact on surface and ground water quality associated with hazardous materials and sedimentation would be less than significant with the incorporation of APM HAZ-2; APM W-1,-4, and -6 through -9; and MM W-6. CEC concluded that impacts to ground and surface water quality could be mitigated to less than significant levels through use of best management practices; compliance with all laws, ordinances, regulations, and standards; and the adoption of conditions of certification SOIL&WATER-1, -2, -5, -7, and -8. For ISEGS, BLM similarly concluded that regulatory compliance and SOIL&WATER-4 through -6 would mitigate potential water quality impacts.

EITP would acquire water from existing wells at the Molycorp Mine Mountain Pass facility. The CPUC/BLM concluded that pumping of quantities within the annual limits imposed by MM W-2 would keep impacts to groundwater supply at less than significant levels. ISEGS would drill two new wells on the project site. The proposed action calls for these two wells to be located just outside the northeast corner of Ivanpah 1. The Mitigated Ivanpah 3 Alternative would position these two wells to the northwest of Ivanpah 1, at a greater distance from the Primm Valley Golf Club. Under the Mitigated Ivanpah 3 Alternative, a groundwater monitoring well would be installed between the ISEGS wells and the Primm Valley Golf Club wells in order to identify and quantify any changes in groundwater

levels. The CEC concluded that impacts to groundwater levels could be effectively mitigated to less than significant levels under conditions of certification SOIL&WATER-3, -4, and -6. BLM concluded that the ISEGS Mitigated Ivanpah 3 Alternative would have less than significant impacts with the adoption of mitigation measures SOIL&WATER-3, -4, and -6.

Hazards associated with flooding would be effectively mitigated for the EITP by adoption of APMs W-1, -3 through -7, and -9 and MM W-5. The CEC concluded that impacts associated with flooding would be mitigated to less than significant levels by the scour protection design and post-storm inspection required by condition of certification SOIL&WATER-5. The BLM identified reduced flooding potential in the Mitigated Ivanpah 3 Alternative due to the reduced footprint in active alluvial fans on the northern end of the site; less than significant impacts would be mitigated by MM SOIL&WATER-5.

The EITP could change surface hydrology by disrupting existing channels or siting transmission towers in the path of water. Changes in surface hydrology would be effectively mitigated to less than significant levels for the EITP by the adoption of APMs W-1, -2, -4 through -7, and -9 and MMs W-3 through -5. ISEGS would have an increased potential to affect surface hydrology due to increased site grading and the introduction of additional water for routine mirror washing. The ISEGS applicant has committed to implementing low impact development principles into the stormwater design plan in an effort to maintain existing drainages. The CEC and the BLM both concluded that impacts associated with surface hydrology would be mitigated by conditions of certification SOIL&WATER-1, 2, and 5. The Mitigated Ivanpah 3 Alternative would considerably reduce adverse impacts to surface hydrology by reducing the overall area of impact and implementing low impact development principles. Any potential impacts would be minimized through compliance with existing regulatory statutes. Impacts on hydrology and water resources from the two projects together would be less than significant with mitigation. See also Section 5.3.8.6 for a discussion of cumulative impacts.

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3.9 Land Use

This section describes the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to land use, grazing allotments, mining claims, and designated areas. Impacts to agricultural lands are not discussed as there is no agricultural land in the project area.

3.9.1 Environmental Setting

3.9.1.1 Land Use

The proposed project would traverse the eastern Mojave Desert in southeastern California and southwestern Nevada from just outside Primm, Nevada, to outside of Boulder City, Nevada, primarily within existing utility right-of-ways (ROWs) on BLM-administered lands and land in unincorporated Clark County, Nevada, and San Bernardino County, California. Table 3.9-1 lists all land use types crossed by the proposed project and alternatives as shown in Figure 3.9-1. Land uses within the area range from open space and conservation/preserve areas to commercial, public, private, and recreation; utility/energy uses; industrial and mining uses; transportation; and limited residential uses. Lands in the area with special designations include the Mojave National Preserve, wilderness areas (Wee Thump, Joshua Tree, and South McCullough), and Areas of Critical Environmental Concern (ACECs). A discussion of designated areas including Recreation Areas and Special Recreation Management Areas follows in Section 3.9.1.3.

Table 3.9-1 Proposed Project and Alternatives by Land Use Type and Jurisdiction

Line Segment	MP (Approx)	Total Miles	Land Use Types	Special Designation or Overlay District (if any)	Land Ownership/ Jurisdiction
Proposed Route	0.0-1.2	1.2	Utility Corridor	~~BCCE~~ None	BLM Las Vegas FO
Proposed Route	1.2-2.0	0.8	Conservation Easement	BCCE	Private - Clark Co. and Boulder City
Proposed Route	2.0-7.0	5.0	Utility Corridor	~~BCCE~~ None	BLM Las Vegas FO
Proposed Route	7.0-24.5	17.5	Recreation / Open Public Lands	Jean/Roach Dry Lake SRMA	BLM Las Vegas FO
Proposed Route	24.5-28.5	4	Commercial and Vacant	Ivanpah Airport Environs Overlay	~~CCDOA~~ Clark County
Proposed Route	27.0-28.5	1.5	Commercial and Vacant	Ivanpah Cooperative Management Area	Private - Clark Co. - Unincorporated ~~Area~~Town of Primm
Proposed Route	28.5-31.0	2.5	Recreation	Ivanpah Dry Lake Recreation Area	BLM Needles FO
Proposed Route	31.0-35.0	4.0	Open Public Lands	None	BLM Needles FO
Alternative A	0.0-5.0	5.0	Utility Corridor	~~BCCE~~ None	BLM Las Vegas FO
Alternative B	0.0-6.0	6.0	Utility Corridor	~~BCCE~~ None	BLM Las Vegas FO
Alternative C	0.0-1.0 and 1.5-2.0	1.5	Open Public Lands	None	BLM Las Vegas FO
Alternative C	Between 1.0 and 2.0	0.1	Transportation Corridor	None	Nevada Department of Transportation
Alternative C	Between 1.0 and 2.0	0.1	Commercial	Ivanpah Cooperative Management Area	Private - Clark Co. - Unincorporated ~~Area~~Town of Primm
Alternative C	2.0-5.0	3.0	Open Public Lands	None	BLM Needles FO
Alternative D	Between 0.0 and 1.0	0.1	Open Public Lands	None	BLM Las Vegas FO

Table 3.9-1 Proposed Project and Alternatives by Land Use Type and Jurisdiction

Line Segment	MP (Approx)	Total Miles	Land Use Types	Special Designation or Overlay District (if any)	Land Ownership/ Jurisdiction
Alternative D	Between 0.0 and 1.0	0.1	Vacant	Ivanpah Cooperative Management Area	Private - Clark County - Unincorporated ~~Area~~Town of Primm
Alternative D	1.0-2.0	1.0	Open Public Lands	None	BLM Las Vegas FO
Alternative D	2.0-2.5	0.5	Open Public Lands	None	BLM Needles FO
Alternative D	2.5-3.0	0.5	Recreation	Ivanpah Dry Lake Recreation Area	BLM Needles FO
Alternative E	0.0-1.0	1.0	Vacant	Ivanpah Cooperative Management Area	Private - Clark County - Unincorporated ~~Area~~Town of Primm
Redundant Telecommunication Route	0.0-5.5	5.5	Utility Corridor	~~BCCE~~ None	BLM Las Vegas FO
Redundant Telecommunication Route	5.5-26.5	21.0	Preservation/ Recreation	Eldorado-Piute ACEC	BLM Las Vegas FO
Redundant Telecommunication Route	26.5-28.5	2.0	Preservation/ Recreation	Ivanpah DWMA ACEC	BLM Needles FO
Redundant Telecommunication Route	28.5-29	0.5	Commercial	None	Private - San Bernardino Co. - Unincorporated Area of Nipton
Redundant Telecommunication Route	29-35.5	6.5	Preservation/ Recreation	Ivanpah DWMA ACEC	BLM Needles FO
Redundant Telecommunication Route	35.5-36.5	1.0	Vacant	None	Private Lands
Redundant Telecommunication Route	36.5-39	2.5	Preservation/ Recreation	Ivanpah DWMA ACEC	BLM Needles FO
Golf Course Alternative	39-48	9.0	Open Public Lands	None	BLM Needles FO
Mountain Pass Alternative	39-44	5.0	Open Public Lands	None	BLM Needles FO
Mountain Pass Alternative	44-46	2.0	Vacant and Industrial	None	Private - San Bernardino Co. - Unincorporated Area of Mountain Pass
Mountain Pass Alternative	46-53	7.0	Open Public Lands	None	BLM Needles FO

Key:
ACEC – Area of Critical Environmental Concern
BCCE – Boulder City Conservation Easement
BLM – Bureau of Land Management
CCDOA – Clark County Department of Aviation
DWMA – Desert Wildlife Management Area
FO – Field Office
SRMA – Special Recreation Management Area

The proposed project would replace an existing 115-kV single-circuit subtransmission line with a 230-kV double-circuit transmission line. Because the original ROW was issued prior to 1976, the applicant is required to apply for a new ROW grant as described in Section 3.9.2. The proposed transmission line would be constructed primarily within the existing 100-foot ROW, with the exception of six locations where the ROW would need to be widened for utility crossings or technically difficult turns in the route. Table 3.9-2 lists the locations where the project would deviate from the existing ROW. The locations of these deviations in relation to the existing 115-kV route are discussed in Chapter 2, "Description of Proposed Project and Alternatives."

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Figure 3.9-1
Eldorado-Ivanpah Transmission Project

Designated Areas Around the EITP Area

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road
- BLM Land
- NPS
- Proposed Southern Nevada Supplemental Airport
- Ivanpah Airport Environs Overlay
- Proposed ISEGS
- ACEC (BLM)
- Wilderness Area
- SRMA (BLM)
- Boulder City Conservation Easment

BLM Designated Corridor
- 2,000ft
- 3,000ft

N

0 1 2 3 4 5
Miles

March 2010

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Table 3.9-2 Proposed Route Deviations from the Existing ROW

Location (Milepost)	Distance from ROW (miles)	Land Use Type
7	> 1	Open Public Lands
11	> 1	Open Public Lands
12	> 1	Open Public Lands
25	> 1	Open Public Lands
25–26	> 1	Open Public Lands
34–35	> 1	Open Public Lands

3.9.1.2 Grazing Allotments and Animal Unit Months

The BLM administers and manages the grazing allotments on public lands in the vicinity of the project area. The primary laws that govern grazing on public land are the Taylor Grazing Act of 1934, the Federal Land Policy Management Act of 1976, and the Public Rangelands Improvement Act of 1978. The federal government authorizes grazing use through grazing permits or leases. Animal Unit Months (AUMs)—the amount of forage needed to feed one cow, one horse, or five sheep for one month—are used to calculate the fee charged to an allotee to graze animals in designated grazing allotments on federal lands (BLM 2009c). Figure 3.9-2 shows the grazing allotments within the vicinity of the project.

California Allotments

The proposed transmission line and Transmission Alternative C would cross the Clark Mountain grazing allotment, and Transmission Alternative D would cross both the Valley View and Clark Mountain grazing allotments. The Golf Course Telecommunication Alternative would cross the Clark Mountain grazing allotment, and the Mountain Pass Alternative would cross both the Clark Mountain and the Valley Wells grazing allotments. The Clark Mountain Allotment is currently open~~, but not~~ and ~~currently~~ in use (Bartz 2009). The Valley Wells allotment is officially closed to grazing; and the Valley View allotment is currently awaiting the formal closure process (Bartz 2009). A table of allotments crossed by milepost (MP) is provided below in Table 3.9-3.

Table 3.9-3 California Allotments Crossed by the Project

Allotment Name	MP Crossed	Status
Transmission Line		
Clark Mountain	28.5 – MP 34	Open. ~~Inactive.~~ Active.
Alternative C		
Clark Mountain	MP 2.5 – MP 5	Open. ~~Inactive.~~ Active.
Alternative D		
Valley View	MP 2 – MP 3	Awaiting Formal Closing Process.
Clark Mountain	MP 3 – MP 3.3	Open. ~~Inactive.~~ Active.
Telecom Line		
Golf Course Alternative		
Clark Mountain	MP 15 and MP 18	Open. ~~Inactive.~~ Active.
Mountain Pass Alternative		
Clark Mountain	MP 15 – MP 20	Open. ~~Inactive.~~ Active.
Valley Wells	MP 11.5 – MP 15	Closed.

Nevada Allotments

The proposed project would cross the Hidden Valley, Roach Lake, Jean Lake, and McCoullough Mountain grazing allotments. The Roach Lake, Jean Lake, and McCoullough Mountain allotments are currently closed (Johnson 2009). The Hidden Valley allotment is currently open and in use (Johnson 2009). A table of Nevada Allotments crossed by the project is provided in Table 3.9-4.

Table 3.9-4 Nevada Allotments Crossed by the Project

Allotment Name	MP Crossed	Status
Transmission Line		
Roach Lake	MP 26 – MP 29	Closed.
Jean Lake	MP 11.5 – MP 26	Closed.
McCullough Mountain	MP 0 – MP 10.5	Closed.
Hidden Valley	MP 10.5 – MP 11.5	Open. Active.
Alternative A		
McCullough Mountain	MP 0 – MP 4	Closed.
Alternative B		
McCullough Mountain	MP 0 – MP 5	Closed.
Alternative C		
Roach Lake	MP 1 – MP 1.3	Closed.
Alternative D and Subalternative E		
Roach Lake	MP 0 - MP 2	Closed.
Telecommunication Line		
McCullough Mountain	MP 0 – MP 21	Closed.
Jean Lake	MP 21 – MP 25	Closed.

3.9.1.3 Designated Areas

The proposed project would be primarily routed through open public land within existing ROW designated for utility and energy uses. However, the proposed route crosses or runs adjacent to a variety of areas with special land use designations, including ACECs, Wilderness Areas, a conservation easement, and Recreation Areas/Special Recreation Management Areas, as depicted in Table 3.9-5.

Table 3.9-5 Designated Areas Adjacent to the Project

Line Segment	MP (Approx)	Miles Parallel	Land Use	Special Designation	Land Ownership/ Jurisdiction
Proposed Route	22.0 – 25.0 and 27.0	3.0	Recreation / Open Public Lands	Jean/Roach Dry Lake SRMA	BLM Las Vegas FO
Proposed Route	26.0	> 0.5	Vacant	Proposed SNSA Boundary	~~CCDOA~~ Clark County
Proposed Route	21.5 – 25.5	4.0	Vacant	SNSA Environs Overlay District	Clark County
Redundant Telecommunication Route	17 – 20.5	4.5	Preservation/ Recreation	Wee Thump Joshua Tree Wilderness Area	BLM Las Vegas FO
Redundant Telecommunication Route	24.0 – 24.5	0.5	Preservation/ Recreation	Crescent Townsite ACEC	BLM Las Vegas FO
Redundant Telecommunication Route	26.5 – 39.0	3.0	Preservation/ Recreation	Mojave National Preserve	National Park Service
Mountain Pass Alternative	39.0 – 41.0	2.0	Preservation/ Recreation	Mojave National Preserve	National Park Service
Mountain Pass Alternative	46.5 – 47.5	1.0	Preservation/ Recreation	Clark Mountain ACEC	BLM Needles FO

Key:
ACEC – Area of Critical Environmental Concern
CCDOA – Clark County Department of Aviation
FO – Field Office
SNSA – Southern Nevada Supplemental Airport

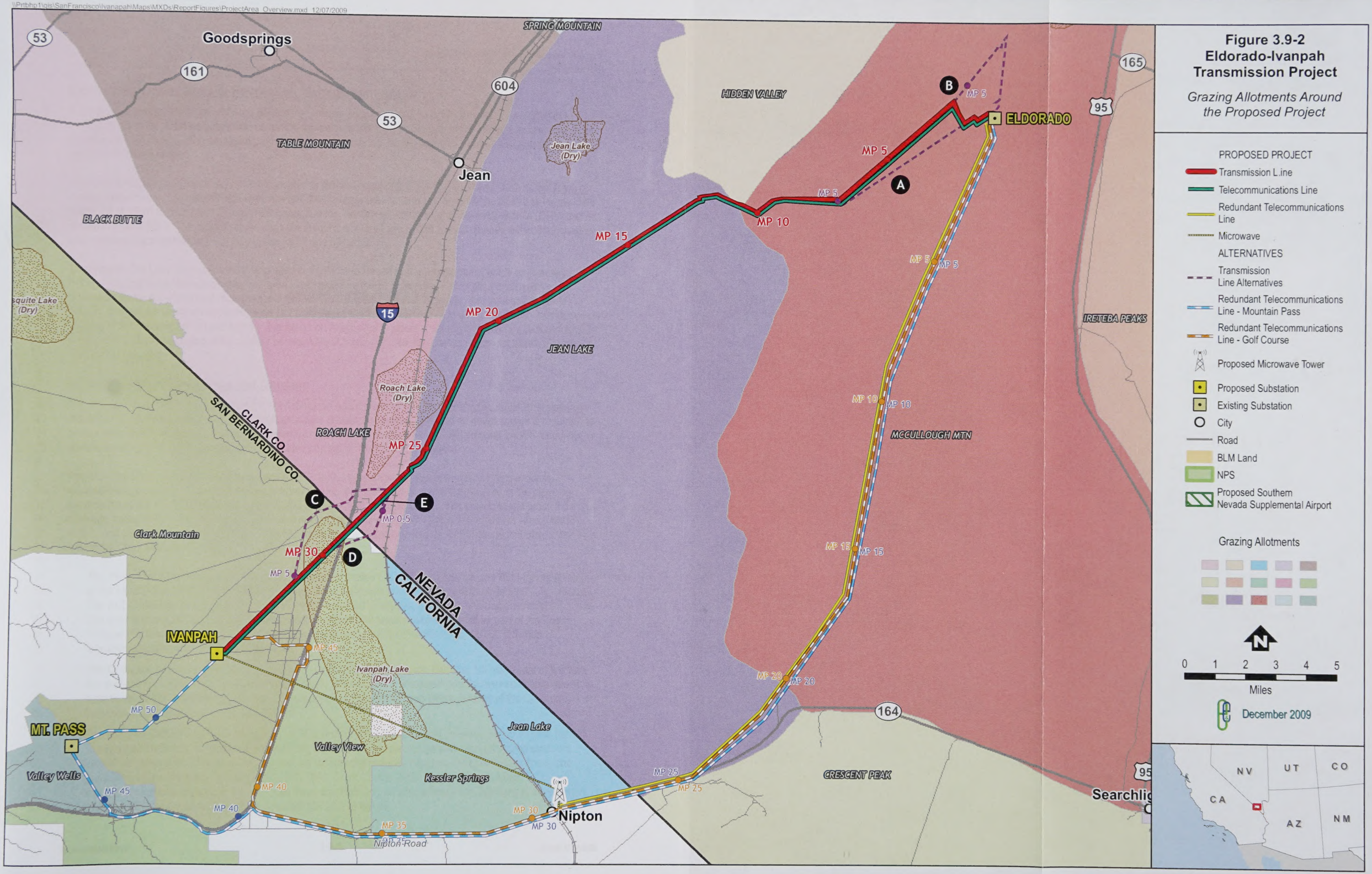

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Figure 3.9-2
Eldorado-Ivanpah
Transmission Project
Grazing Allotments Around the Proposed Project
PROPOSED PROJECT
Transmission Line
Telecommunications Line
Redundant Telecommunications Line
Microwave
ALTERNATIVES
Transmission Line Alternatives
Redundant Telecommunications Line - Mountain Pass
Redundant Telecommunications Line - Golf Course
Proposed Microwave Tower
Proposed Substation
Existing Substation
City
Road
BLM Land
NPS
Proposed Southern Nevada Supplemental Airport
Grazing Allotments
0 1 2 3 4 5
Miles
December 2009
Goodsprings
Jean
ELDORADO
IVANPAH
MT. PASS
Nipton
Searchlig
SPRING MOUNTAIN
TABLE MOUNTAIN
HIDDEN VALLEY
BLACK BUTTE
JEAN LAKE
ROACH LAKE
MCCULLOUGH MTN
IRETEBA PEAKS
CRESCENT PEAK
Clark Mountain
Valley Wells
Valley View
Kessler Springs
Jean Lake
Ivanpah Lake (Dry)
Roach Lake (Dry)
Jean Lake (Dry)
Nipton Road
CLARK CO.
SAN BERNARDINO CO.
NEVADA
CALIFORNIA
MP 5
MP 10
MP 15
MP 20
MP 25
MP 30
MP 35
MP 40
MP 45
MP 50
MP 0.5
A
B
C
D
E
53
161
604
15
165
95
164
NV
UT
CO
CA
AZ
NM

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Recreation Areas / Special Recreation Management Areas

A Special Recreation Management Area (SRMA) is typically an area of land of 1,000 acres or more under BLM management, which has been identified as having the potential for high public use and/or cultural/natural resources management (BLM n.d.). The proposed project would cross both the Jean/Roach Dry Lake SRMA and the Ivanpah Dry Lake Recreation Area.

The Jean Dry Lake and Roach Dry Lake are located in Nevada, east of the Town of Jean and north of the Town of Primm, respectively. The Jean/Roach Dry Lake SRMA is a large area of land managed by the BLM Las Vegas Field Office (BLM 1998) for mountain biking, small game hunting, horseback riding, and off-highway vehicle (OHV) use as shown in Figure 3.9-1. The project would cross the Jean/Roach Dry Lake SRMA, predominantly within the boundary of an existing transmission line ROW between MP 7 and MP 28.5.

The Ivanpah Dry Lake Recreation Area is located in the Mojave Desert in San Bernardino County on Interstate 15 (I-15) at the California Nevada border. The area is managed by the BLM Needles Field Office and used by recreationists for non-motorized recreational activities, including archery, kite buggying, and land sailing (BLM 2009b). The project would cross the Ivanpah Dry Lake Recreation Area within a BLM-designated utility corridor on an existing ROW between MP 29 and MP 31. Transmission Alternative D would cross the Ivanpah Dry Lake Recreation Area within a BLM designated utility corridor between MP 2.5 and MP 3 where it would reconnect with the proposed action near MP 29.5.

Areas of Critical Environmental Concern

The Federal Land Policy and Management Act defines an ACEC as an area "within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards."

The BLM identifies, evaluates, and designates ACECs through its resource management planning process. Allowable management practices and uses, mitigation, and use limitations, if any, are described in the planning document and the concurrent or subsequent ACEC Management Plan (BLM n.d.). The project would cross the Piute-Eldorado Valley ACEC and would pass within one mile of the Ivanpah Desert Wildlife Management Area (DWMA) ACEC, and the Crescent Townsite ACEC. The Mountain Pass Telecommunication Alternative would pass within one mile of the Clark Mountain ACEC.

The Piute-Eldorado Valley ACEC is located in unincorporated Clark County, Nevada, on BLM-managed lands to the west of the Colorado River, north and east of the California state line, and south of Boulder City, Nevada. The ACEC includes several parallel mountain ranges divided by valleys, dry lakes, and bajadas (USFWS 1994). The area is managed by the BLM to protect desert tortoise and related tortoise habitat as part of the Desert Tortoise Recovery Plan. The telecommunication line would cross the Piute/Eldorado ACEC between telecommunication line MP 5.5 and MP 26.5.

The Crescent Townsite ACEC is a 437-acre area located in Clark County, Nevada, 1.5 miles east of the state line and south of State Route (SR) 164/Nipton Road. The ACEC is a protected cultural resources area due to its historic railroad construction and mining. The proposed project would pass within .5 miles of the Crescent Townsite ACEC near transmission line MP 25.

The Ivanpah DWMA ACEC is managed by BLM to protect desert tortoise and preserve desert tortoise habitat. The Ivanpah DWMA is composed of the Ivanpah, Kelso, and Shadow valleys and interconnecting corridors. Elevations range from 2,500 to 4,764 feet and the topography includes bajadas, rolling hills, lava flows, one playa lake, and a few major drainages (USFWS 1994, Clark County 2008). The EITP redundant telecommunications route (both the Mountain Pass and Golf Course alternatives) runs adjacent to the Ivanpah DWMA ACEC for approximately 12.5 miles from MP 26.5 to MP 39.

The Clark Mountain ACEC is a BLM-designated ACEC in the CDCA Plan area with significant endemic plant species, plant communities, diverse wildlife elements, and cultural resources values. The Clark Mountain ACEC is just west and north of the Mountain Pass Substation. The Mountain Pass Telecommunication Alternative would cross within one mile of the Clark Mountain ACEC around MP 47 near the Mountain Pass Substation (BLM 1980).

Boulder City Conservation Easement

~~The Boulder City Conservation Easement (BCCE) land transfer was completed in 1995 pursuant to Public Law 85-339 via the "Interlocal Agreement for Sale and Grant of a Conservation Easement" between Boulder City and Clark County in 1994 and the "Contract Between the State of Nevada and the City of Boulder City for the Sale of Land in the Eldorado Valley" in 1995. Both contracts include provisions which reserve "[c]ertain right-of-way corridors for transportation and public utilities" and outline the approximate land sale acreage and BLM-designated utility corridors within the easement. In the Supplement to the Stateline Resource Management Plan (RMP)/EIS published in May 1994 (published prior to the 1994 and 1995 agreements), the BLM utility corridors are described as 2,000- and 3,000-foot-wide corridors reserved to the BLM by U.S. Patent No. 27-95-0022~~

U.S. Patent No. 27-95-0022, issued on July 9, 1995, transferred ownership of the Eldorado Land Sale Area, lands to the Colorado River Commission of the State of Nevada, which included lands that were later designated the Boulder City Conservation Easement (BCCE), as described below. The patent excepted and reserved to the United States transportation corridors that were identified on Exhibit A of the patent. The intent was to reserve the corridors in the transfer, which were identified in the Supplement to the Stateline Resource Management Plan (RMP)/EIS published in May 1994. Corridors within the Eldorado Land Sale Area were specifically identified as 1,000, 2,000 and 3,000 feet in width, on page 2-39 of said document.

The Colorado River Commission of the State of Nevada entered into a Contract for Sale of transfer of the Eldorado Land Sale Area lands to the City of Boulder City. This Contract of Sale included a number of exceptions and reservations to the United States that were carried forward from the patent, including "[c]ertain right-of-way corridors for transportation and public utilities as designated in Exhibit A [of that patent]." A Deed of Sale for transfer of the lands to the City of Boulder City was executed on July 9, 1995, that included the exception and reservation of the transportation and public utilities corridors. The City of Boulder City entered into an "Interlocal Agreement for Sale and Grant of a Conservation Easement" with Clark County for a portion of the Eldorado Land Sale Area. The Conservation Easement Grant was issued to Clark County on July 18, 1995, known as the BCCE. On August 24, 2010, the City of Boulder City adopted Supplemental Interlocal Agreement No. 10-330 ("Amendment to the Conservation Easement Grant [Agreement No. 94-A313A]") between Boulder City and Clark County, which amended some of the language in the earlier agreement as well as providing best practices for construction, maintenance, and operation of infrastructure to pass through the easement, and establishing an "Energy Zone."

The BCCE is located immediately south of Boulder City proper. The land is preserved and protected for the desert tortoise and other species as described in the BCCE Conservation Easement Grant and outlined in the Clark County Multiple Species Habitat Conservation Plan (MSHCP). Only passive use (hiking, driving slowly on designated routes, and sightseeing) is allowed in the BCCE (Clark County 2000) with the exception of approved activities in designated corridors. ~~According to representatives of the~~ The Desert Conservation Program, a Clark County agency, manages the BCCE through policies outlined in ~~its MSHCP~~ the Interlocal Agreement (as amended), and the City of Boulder City maintains the right to approve land uses within the area. ~~Currently, there are no mechanisms within the land transfer agreements for approving new ROWs within the BCCE; however, existing ROWs are honored. To date, a project of the magnitude of the EITP has not been attempted within the BCCE (Wainscott 2010).~~

As shown in Figure 3.9-3, the proposed transmission route follows a 2,000-foot-wide utility corridor along its southern most edge from the western side through the patent area ~~of the BCCE~~ until it deviates outside of the BLM corridor into the BCCE in a southerly direction for less than one mile at MP 2 along an existing 70-foot ROW. The line then re-enters an adjacent 3,000-foot-wide corridor, continues to the northeast, and terminates at the Eldorado Substation.

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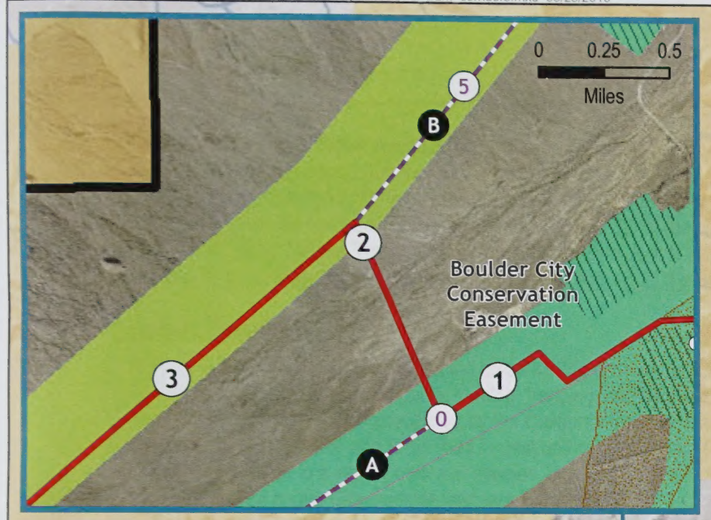
Figure 3.9-3
Eldorado-Ivanpah Transmission Project

Designated BLM ROW Corridors
Boulder City Conservation Easement



To Boulder City

Boulder City Conservation Easement

Eldorado Lake (Dry)

ELDORADO

LAKE MEAD NATIONAL PRESERVE

165

95

Nelson

PROPOSED PROJECT

- Transmission L.ine
- Redundant Telecommunications Line
- Transmission Line Alternatives
- Milepost
- Proposed Substation
- Existing Substation
- Boulder City Conservation Easement
- BLM Land
- NPS

BLM Designated Corridor

- 2000 Feet
- 3000 Feet
- Power Sub-Station in Corridor

N

0 1 2
Miles

2010

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Transmission Alternative Route A would begin at the same point-of-entry into the ~~BCCE~~ patent area as the proposed route but follow the adjacent 3,000-foot-wide corridor to the Eldorado Substation. Transmission Route Alternative B would continue north in the 2,000-foot-wide corridor instead of turning south at MP 2. Alternative B would then make a sharp right turn at the intersection between the 2,000- and 3,000-foot-wide corridors and continue south to the Eldorado Substation. Neither Transmission Route Alternatives A or B would deviate outside of BLM-designated corridors that were excepted and reserved in the patent and would therefore not be located within the BCCE.

National Preserves

National Preserves are defined as protected areas having characteristics associated with national parks but where Congress has permitted continued public hunting, trapping, and oil/gas exploration and extraction (NPS 2000). The Mojave National Preserve was established by the California Desert Protection Act of 1994. The Preserve is managed by the National Park Service and is the third largest unit of the National Park System in the contiguous United States. The Preserve is home to a variety of desert species, including desert tortoise, bighorn sheep, mountain lion, bobcat, roadrunner, golden eagle, Gila monster, and jack rabbit (NPS 2009). Other features of the Preserve include volcanic formations, the Kelso Dunes, Mitchell Caverns, Marl Mountains, and the Cima Dome. The redundant telecommunication route (both the Mountain Pass and Golf Course alternatives) would abut the Mojave National Preserve between MP 26.5 and MP 39.

Wilderness Areas

The Wilderness Act of 1964 gives Congress the sole power to designate Wilderness Areas. The Act defines wilderness as an area of land that "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." Except in emergencies or necessary administration of an area, vehicular travel is prohibited in Wilderness Areas. The BLM is responsible for managing 191 Wilderness Areas in the Western United States (BLM 2009a).

The Wee Thump Joshua Tree Wilderness Area is located 45 miles south of Las Vegas off Highway 164 between Nipton, California and Searchlight, Nevada. The area is a gently sloping desert plateau with elevations ranging from 1,275 – 1,500 feet, comprising dense pristine Joshua tree woodland with a bunch grass understory. The redundant telecommunication line (both the Mountain Pass and Golf Course alternatives) would abut the Wee Thump Joshua Tree Wilderness Area between MP 17 and MP 20.5.

Airports

Currently, the Jean Sport Aviation Center is the only operating airport in the proposed project area. It is located 5 miles from the EITP. However, the Clark County Department of Aviation (CCDOA) is proposing to build several new facilities in the area, including an additional airport, the Southern Nevada Supplemental Airport (SNSA), and a heliport, the Southern Nevada Regional Heliport. Both facilities are intended to support additional commercial service in the area.

The ~~SNSA~~ proposed SNSA, also known as the Ivanpah Valley Airport, would be located south of Jean, Nevada, northwest of the EITP. If approved, the proposed SNSA boundary would be located within 0.5 miles (2,640 feet) north of the MP 26 of the EITP 230-kV transmission line. Additionally, the EITP would cross the Ivanpah Airport Environs Overlay (Figure 3.9-1). Transmission Alternative Route C would be located closer to the SNSA boundary than the proposed project, and Transmission Alternative Route D and Subalternative E would be located further away. ~~The proposed SNSA is expected to be operational in year 2020, after the scheduled completion of the EITP, which is projected to be operational in 2013.~~ The exact locations of SNSA components, such as runways and navigational equipment, are ~~unknown pending project approval, although several alternatives have been~~ included in the airport

layout plan on file with the FAA (CCDOA 2009); however, the proposed SNSA project and its EIS process are currently on hold (CCDOA ~~2006~~ 2010).

Mining Claims

Mineral mining in southern Clark County occurs on BLM land. Currently, 14 mining claims would be crossed by the project and the proposed alternatives. The mining claims crossed by the proposed project and proposed alternatives are as follows:

Proposed Project

- Township 25 South, Range 60 East, Section 33
- Township 25 South, Range 60 East, Section 34
- Township 25 South, Range 61 East, Section 20
- Township 25 South, Range 61 East, Section 21
- Township 25 South, Range 61 East, Section 22
- Township 26 South, Range 59 East, Section 13
- Township 26 South, Range 60 East, Section 4
- Township 26 South, Range 60 East, Section 5

Transmission Alternative C

- Township 27 South, range 59 East, Section 7

Golf Course Telecommunication Alternative

- Township 16 North, Range 14 East, Section 23

Mountain Pass Telecommunication Alternative

- Township 16 North, Range 13 East, Section 2
- Township 16 North, Range 13 East, Section 11
- Township 16 North, Range 14 East, Section 31
- Township 16 North, Range 14 East, Section 32

3.9.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of federal, state, and local laws, regulations, and standards that govern land use, grazing allotments, and wild horses and burros in the project area.

3.9.2.1 Federal

Federal Land Policy and Management Act of 1976, as amended

The Federal Land Policy and Management Act (FLPMA) provides the BLM with an overarching mandate to manage the public lands and resources under its stewardship under the principles of multiple use and sustained yield. "Multiple use" is a concept that directs management of public lands and their resource values in a way that best meets the present and future needs of Americans and is defined as: a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources (FLPMA §103(c)).

43 CFR § 2807.20

According to 43 CFR § 2807.20, grant holders seeking to amend ROW grants and proposing to deviate substantially in the location, use, or terms and conditions of the original grant must apply for a new ROW grant for any grant issued prior to October 21, 1976. Therefore, because the applicant is upgrading their existing transmission line from 115-kV to 230-kV, a new ROW is being issued by the BLM.

California Desert Conservation Area Plan

In 1980, the BLM prepared a comprehensive management plan for the California Desert Conservation Area (CDCA). The CDCA contains over 12 million acres of public lands that are administered by the BLM. The goal of the CDCA Plan is to provide for the use of the CDCA area, including economic, educational, scientific, and recreational uses, in a manner that enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and aesthetic values of the desert and its productivity (BLM 1980).

As part of the Energy Production and Utility Corridor Element, the CDCA Plan designated a regional network of 16 utility planning corridors (later increased to 19 by plan amendments). Corridors are from two to five miles wide and are several to hundreds of miles in length. Their purpose is to guide detailed planning and siting of utility projects requiring a ROW from the BLM, such as "new electrical transmission towers and cables of 161-kV or above," among other utility types.

BLM Las Vegas Resource Management Plan/ Final EIS

The Las Vegas Proposed RMP/Final EIS identifies future management in the form of objectives and management directions for 3.3 million acres of public land in Clark and Nye Counties, located in southern Nevada (BLM 1998). One guideline stated in the Las Vegas RMP/ Final EIS is that "minimizing the proliferation of randomly placed, single-use utility lines would better protect the scenic values and integrity of the surrounding areas." Although utility ROWs are not be limited to designated corridors, all efforts are focused on utility corridors whenever possible and to their maximum capacity (BLM 1998).

~~Stateline Supplemental Resource Management Plan/Final EIS~~

~~The Supplement to the Stateline RMP/Final EIS designates utility ROWs within the Eldorado Land Sale Area (i.e., the BCCE). Specifically, one goal of the Supplement to the Stateline RMP/Final EIS is to:~~

> ~~a) Reserve in the patent [U.S. Patent No. 27-95-0022] and with the concurrence of the sale proponent, 2,000 and 3,000 foot wide northeast/southwest corridors, and a 1,000 foot wide corridor north/south along the western edge of the sale area, and a 2,000 foot wide corridor through the Eldorado Mountains. These corridors provide adequate room on either side of the current lines for two or more lines... (BLM 1994)~~

~~The Supplement to the Stateline RMP/Final EIS was published in May 1994, prior to the "Interlocal Agreement for Sale and Grant of a Conservation Easement" between Boulder City and Clark County in July 1994 and the "Contract Between the State of Nevada and the City of Boulder City for the Sale of Land in the Eldorado Valley" in July 1995.~~

~~Public Laws 106–362 and 107–282 and BLM Patent 27-2004-0104 (Ivanpah Airport)~~

~~Per Section (2)(b)(1) of the Ivanpah Valley Airport Public Lands Act of 2000 (Public Law 106–362), the land grant for the SNSA, among other requirements, is conditional upon "conduct[ing] an airspace assessment, using the airspace management plan required by section 4(a), to identify any potential adverse effects on access to the Las Vegas Basin under visual flight rules that would result from the construction and operation of a commercial or primary airport, or both, on the land to be conveyed." In addition, the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Public Law 107–282) states that the conditions of the Ivanpah Valley Airport Public Lands Act of 2000 must be met and the project approved before the land identified as the "Ivanpah Airport Noise Compatibility Area" (i.e., the Ivanpah Airport Environs Overlay) is officially transferred (Title V, Section 501[c][1] and~~

~~501[d]). As a result, the SNSA is currently undergoing environmental review and an EIS is being prepared jointly by the BLM and the FAA. The EIS is projected to be complete by the fourth quarter of 2012 (BLM and FAA n.d.). The project cannot be officially approved until after the completion of the EIS; however, the South County Land Use Plan of 2008 specifies land use policies for the SNSA (see Section 3.9.2.3 for more detail).~~

The Ivanpah Valley Airport Public Lands Act of 2000 (Public Law 106–362) established the site for the proposed SNSA, which was patented by the BLM to Clark County via BLM Patent 27-2004-0104, and the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Public Law 107-282) established the "Ivanpah Airport Noise Compatibility Area" (i.e., the Ivanpah Airport Environs Overlay), the transfer of which is contingent upon the completion of an EIS. Currently, the SNSA project and its EIS process (a joint effort by the FAA and the BLM) are on hold; however, the proposed site is nonetheless reserved for the future airport, and the South County Land Use Plan of 2008 specifies land use policies for the SNSA (see Section 3.9.2.3 for more detail).

Federal Aviation Administration Regulations

FAA regulations address potential aircraft obstruction for structures taller than 200 feet or within 20,000 feet of an airport. Specifically, Federal Regulation Title 14, Part 77, established standards and notification requirements for objects that have the potential to affect navigable airspace. In 1993, Part 77.13(a)(5)(ii) was revised to include only those airports under construction and excluded proposed airports (FAA 1993). Nonetheless, the Part 77 standards are intended to (1) evaluate the effect of the construction or alteration of structures on airport operating procedures; (2) determine if there is a potential hazard to air navigation; and (3) identify measures to enhance safety. Specifically, the FAA requires notification through the filing of FAA Form 7460, Notice of Proposed Construction or Alteration, if a structure is over 200 feet in height or closer than 20,000 feet to an existing airport or airport under construction (Title 14, Part 77.13).

3.9.2.2 State

California

California Public Utilities Commission

CPUC's review of transmission line applications takes place under two concurrent and parallel processes:

1. Environmental review pursuant to CEQA
2. Review of project needs and costs pursuant to Public Utilities Code Sections 1001 et seq. and General Order 131-D

CPUC General Order 131-D, "Rules relating to the planning and construction of electric generation, transmission/power/distribution line facilities and substations located in California," states that no electric public utilities will begin construction in the state of California of any new electric generating plant, or of the modification, alteration, or addition to an existing electric generating plant, or of electric transmission/power/distribution line facilities, or of new, upgraded or modified substations without first complying with the provisions of this General Order. For purposes of the General Order, a transmission line is a line designated to operate at or above 200-kV. A power line is a line designated to operate between 50- and 200-kV. A distribution line is a line designated to operate under 50-kV.

Nevada

Public Utilities Commission of Nevada

The construction of a utility facility, defined as a transmission line that is 200-kV or more, requires a permit by the Public Utilities Commission of Nevada under the Utility Environmental Permit Act according to the Nevada Revised

Statutes (NRS) 704.820 through 704.900. However, the replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility (NRS 704.865).

3.9.2.3 Local Plans and Policies

Clark County Comprehensive Plan

The Clark County Comprehensive Plan policy applicable to the project is as follows:

- Energy transmission facilities should be located adjacent to existing energy transmission facilities. New pipelines and power lines should be limited to existing corridors and their placement within the corridors should be as close together as possible.

South County Land Use Plan

Clark County has included in their South County Land Use Plan of 2008 the following goals and policies for the Ivanpah Airport Environs Overlay (for the SNSA):

- *Goal SC13: Provide for compatibility between Ivanpah Airport Environs and existing or proposed land uses.*
- *Policy SC13.1: New development projects located in the Ivanpah Airport Noise Compatibility Area (ANCA) shall comply with additional ANCA land use regulations.*
- *Policy SC13.2: Encourage building and structures to comply with any regulations established for the Ivanpah Airport Noise Compatibility Area (ANCA) unless deviations are deemed appropriate by the Airport Hazard Areas Board of Adjustment.*
- *Policy SC13.3: Encourage development patterns and standards compatible with the future operations of the Ivanpah Airport since most of Jean and Primm will be within the Airport Noise Compatibility Area (ANCA).*

These restrictions would only apply to the Ivanpah Airport Environs Overlay (see Figure 3.9-1), which is crossed by the project between approximately MP 24.5 and MP 28.5. ~~As described above, to date, the SNSA has not been approved and the EIS for the SNSA is not scheduled to be published until late 2012 or 2013.~~ As described above, the SNSA project is currently on hold.

Title 30 Clark County Unified Development Code: Uses 30.44

SLUCM Code 4800

Public Utility Structures, including 34.5-kV or greater transmission lines (not including communication towers and antennas)

For utility poles only, Conditional Use in all districts is subject to:

1. Additional height to existing poles:
   a. 20 additional feet may be added to the height of original poles, or poles may be replaced on a one-for-one basis as long as the height of the new pole does not exceed the height of the original pole by more than 20 feet.
   b. If more than 20 feet is added, the pole must be set back 300 percent of the height of the pole from residential development.
2. Additional poles may be added to existing utility corridors if an administrative minor deviation is approved with letters of consent from adjacent and affected property owner. Letters are not required from publicly owned property.

3. Compliance with fugitive dust regulations, if applicable, per Clark County Air Quality Regulations.

Clark County Multiple Species Habitat Conservation Plan and EIS

The Clark County MSHCP has several concerns and recommendations concerning utility construction, which are as follows:

Threat 1201:	Mortality through collisions and electrocution with power lines.
Conservation Action(s):	site new power lines in consolidated utility corridors adjacent to existing facilities; retrofit existing lines where appropriate.
Threat 1202:	habitat degradation associated with utility facility construction and maintenance.
Conservation Action (s):	minimize new road construction associated with new utility facilities; where possible, close and rehabilitate unneeded existing roads or new roads after construction.
Threat 1203:	increased availability of perch sites for ravens (tortoise predators) and raptors.
Conservation Action (s):	incorporate design feature into new towers to inhibit raptor or raven perching and nesting: as appropriate, retrofit existing towers with devices to discourage raptor and raven perching.

Boulder City Master Plan

A review of the Boulder City Master Plan determined that no land use plans or policies apply to the project.

Boulder City Conservation Easement

According to the "Interlocal Agreement for Sale and Grant of a Conservation Easement" between Boulder City and Clark County in ~~1994~~1995, the purpose of the BCCE is "to assure that the Property will be retained in a natural condition and to prevent any use of the Property that will impair or interfere with its National Resource Value." The terms of the easement are enforced by Clark County (the Grantee), which instituted "measures to preserve, protect, manage and study the Natural Resource Values of the Property, and in particular the habitat of the desert tortoise" (Boulder City and Clark County ~~1994~~1995) through the Clark County MSHCP. ~~The agreement also reserves to Clark County limited rights to construct utilities as described in Exhibit B to the agreement and to maintain~~ The "Amendment (Agreement No. 94-A313A) to the Conservation Easement Grant (Agreement No. 94-A313)," approved by the Boulder City on August 24, 2010, updates and clarifies the original agreement, establishes an Energy Zone (Exhibit C), and provides a list of "Best Practices to be used for the Construction, Maintenance, and Operation of Infrastructure to Pass Through and Within the Easement" (Exhibit D). ~~certain corridors and ROWS, such as the BLM-designated utility corridors discussed above under the Stateline Supplemental RMP/Final EIS. Prior to undertaking any act that would have "adverse impacts upon the Natural Resources Values," Clark County must inform the USFWS and incorporate USFWS-recommended mitigation measures to reduce adverse impacts "to the greatest extent practicable" (Boulder City and Clark County 1994). The City of Boulder City must also be consulted for approval of new land uses in the area.~~ The portion of the EITP that crosses outside of BLM-designated utility corridors would be required to pay a bond to Clark County, per the terms of Exhibit D of the 2010 Amendment. All other construction within the BCCE would be required to follow posted speed limits and other reasonable requirements according to BCCE policies in order to be compatible with local land uses.

San Bernardino County General Plan

A review of the San Bernardino County General plan determined that no applicable land use plans or policies apply to the proposed project because the part of the project that passes through San Bernardino County falls along an existing BLM ROW.

3.9.3 Impact Analysis

This section defines the methodology used to evaluate impacts on land use, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.9.4.

3.9.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to land use would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

3.9.3.2 CEQA Impact Significance Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. physically divide an established community;

b. conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project; or

c. conflict with any applicable habitat conservation plan or natural community conservation plan.

3.9.3.3 Methodology

To determine whether or not impacts would occur as a result of the proposed project, the various land use designations that exist within the project area were reviewed to determine whether or not the project construction and operations would be consistent with the designated and allowable uses. In addition, specific plans relative to the use and management of specially designated lands were evaluated to determine if the proposed project construction and operations would conflict with these plans. In addition, specific legal ROW agreements and ownership contracts were reviewed as available.

3.9.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measure (APM) related to land use:

APM LU-1: Aeronautical Considerations. The applicant would submit notice to FAA electronically, in accordance with FAA procedures, and as far in advance of construction as possible.

3.9.3.5 Proposed Project / Proposed Action

Construction

Eldorado–Ivanpah Transmission Line

Land Use Jurisdictions

As listed in Table 3.9-1, the transmission line would cross lands within the jurisdiction of BLM Needles, Clark County, BLM Las Vegas, and the BCCE.

Land under the jurisdiction of the BLM Needles Office is designated public land open to a variety of multiple uses including recreation, grazing, mineral extraction, and the issuance of land use authorizations. Land under the jurisdiction of the BLM Las Vegas Office is designated as open public lands and recreation. Transmission line construction is an allowable use on land with these designations so long as BLM determines that a ROW grant would be in the public interest. Because the purpose of the project is to upgrade an existing transmission line and the majority of the line would be within the boundaries of an existing BLM-designated utility corridor, following existing ROWs, the proposed project would therefore be consistent with BLM land management plans and policies.

The route would also cross Clark County land designated as commercial. Transmission lines 34.5-kV or greater are an allowable use in all districts (zones/land use designations) in Clark County if the applicant follows conditions set forth by the Clark County Unified Development Code (the Code). The Code is outlined above in Section 3.9.2.3, "Local Plans and Policies." The proposed project would comply with the conditions outlined by the Code and therefore is consistent with Clark County plans and policies.

The portion of the proposed project that crosses the BCCE would be constructed mostly within the boundary of BLM-managed utility corridors; however, less than one mile would cross outside of the corridor at MP 2 along an existing 70-foot ROW before reconnecting with an adjacent designated corridor to the south and continuing east to the Eldorado Substation. Construction of the proposed project within the BLM-designated utility corridor is an allowable use; however, construction on the portion outside of the utility corridors would require approval from Clark County and Boulder City per MM LU-1. Additionally, MM HAZ-1 includes Worker Environmental Awareness Training to inform workers of BCCE policies related to road designations, speed limits, and restrictions on camping in the area. Construction of the EITP along the existing ROW, even though it falls outside of the BLM-designated utility corridor, would be compatible with the Clark County MSHCP because the primary purpose of the plan is to minimize adverse impacts on natural resources within the BCCE. Currently, the EITP, as proposed, would disturb less habitat than the two identified alternatives (Transmission Alternative Routes A and B) even though they would fall entirely within the corridors as discussed in further detail in Section 3.4, "Biological Resources."

Grazing Allotments

The transmission line would cross ~~one~~ two active grazing allotments, Hidden Valley, between MP 10.5 and MP 12, and ~~one open but inactive grazing allotment,~~ Clark Mountain, between MP 29 and MP 34. Construction of the transmission line could have a temporary effect on grazing in ~~the Hidden Valley allotment~~ these allotments within the construction area during project construction; however, grazing would not be prohibited during construction.

Recreation Areas and Special Recreation Management Areas

The transmission line would cross the Ivanpah Dry Lake Recreation Area between MP 29 and MP 31 and the Jean/Roach Dry Lake SRMA between MP 7 and MP 28.5. Temporary adverse effects to recreation may occur as a result of transmission line construction. For further discussion of impacts on recreation and mitigation measures, refer to Section 3.12, "Recreation."

Mining Claims

The transmission line would cross seven active mining claims. Project construction would temporarily restrict access of mining claim holders to their mining claims.

Airports

The transmission line passes within 0.5 miles of the proposed SNSA at MP 26 and within the Ivanpah Airport Environs Overlay between MP 24.5 and 28.5. While the SNSA has not yet been approved, the South County Land Use Plan contains policies related to compatibility with land use planning efforts for the future SNSA. In order to comply with these policies and reduce future land use conflicts with the SNSA, MM HAZ-2 requires that the applicant comply with all FAA requirements when the SNSA is constructed. ~~consult with the FAA prior to final project design.~~

Ivanpah Substation

The Ivanpah Substation would be constructed within the Clark Mountain Grazing allotment. Construction of the Ivanpah Substation would permanently remove approximately 38.5 acres of grazing land from the Clark Mountain grazing allotment which would account for 0.04 percent of the total acreage of the Clark Mountain allotment. Removal of 38.5 acres of the allotment would result in the loss of 0.66 AUMs.

Telecommunications Line

Construction of the redundant telecommunications line would not result in any additional impacts on any land use plans, grazing allotments, AUMs, Special Management Areas, or mining claims other than those discussed above for the transmission line. Construction of the redundant telecommunications line would occur within an existing ROW on BLM lands designated as Preservation/ Recreation. The line crosses seven mining claims and the Piute-Eldorado ACEC between MP 5.5 and MP 26.5. As telecommunications line construction activities would occur within existing ROWs, neither the Piute-Eldorado ACEC nor mining (see Section 3.6, "Geology, Soils, and Minerals," for further discussion of mining) would be adversely affected as a result of construction of the telecommunications line.

Operation & Maintenance

Eldorado–Ivanpah Transmission Line

Operation and maintenance activities of the transmission line would take place within an existing ROW and maintenance vehicles would use existing roads when servicing the transmission lines from the ground; therefore, land uses or policies would not be adversely affected.

Ivanpah Substation

Operation and maintenance of the Ivanpah Substation would involve visits to the Substation by maintenance personnel throughout the life of the project. Maintenance personnel would travel to the site as needed on roads within the ROW; therefore, the grazing allotment would not be adversely affected.

Telecommunications Line

Operation and maintenance activities of the telecommunications line would take place within an existing ROW and maintenance vehicles would use existing roads when servicing the telecommunications line from the ground; therefore, land uses would not be adversely affected.

NEPA Summary

Short-term, localized, negligible adverse impacts on the Ivanpah Dry Lake Recreation Area, the Jean/Roach Dry Lake SRMA and the Hidden Valley and Clark Mountain grazing ~~allotment~~ allotments could occur as a result of project construction. Long-term, localized, negligible adverse effects on the Clark Mountain grazing allotment would occur as a result of operation as it would remove 38.5 acres of land from the 97,560 acre grazing allotment. Construction of

the substation would result in a long-term adverse negligible impact on the Clark Mountain Allotment. Construction of the proposed project could also have adverse impacts on land uses within the BCCE and the Ivanpah Airport Environs Overlay area; however, impacts would be reduced with the implementation of MM LU-1, MM HAZ-1, and MM HAZ-2, respectively.

CEQA Significance Determinations

IMPACT LU-1 **Conflict with Applicable Plans and Policies**
Less than significant with mitigation

The proposed project would be constructed mostly within an existing BLM-managed utility corridor; however, the proposed project would cross various land uses in both California and Nevada. For example, the project would be routed through the BCCE, which is managed by Clark County and the City of Boulder City with specific utility corridors reserved to the BLM. A portion of the proposed line around MP 2 would deviate outside of the BLM-designated utility corridors granted in U.S. Patent No. 27-95-0022 for less than one mile; however, the segment would follow the existing 115-kV ROW. Regardless, because the route deviates outside of the corridor and requires widening the existing 70-foot ROW, MM LU-1 is required. MM LU-1 requires that the applicant ~~consult~~ comply with the terms of the Interlocal Agreement (as Amended) between Clark County and the City of Boulder City, including Exhibit D to the Agreement, and acquire approval for activities outside of the BLM-designated corridor within the BCCE. Additionally, MM HAZ-1 includes Worker Environmental Awareness Training to ensure compliance with BCCE policies related to road designations, speed limits, and restrictions on camping in the area.

The route also crosses through land designated as the Ivanpah Airport Environs Overlay for the SNSA. In order to ensure that there are no impacts related to land use planning efforts for the future SNSA, the applicant would adhere to the policies of the South County Land Use Plan. Additionally, MM HAZ-2 requires that the applicant comply with all FAA requirements when the SNSA is constructed. ~~consult with the FAA prior to final project design to acquire a Hazard/No Hazard Determination and ensure consistency with FAA regulations.~~ The SNSA is discussed in further detail in Section 3.7, "Hazards, Health, and Safety," and Chapter 5, "Cumulative Scenarios and Impacts."

The proposed project would cross a small area of private land in unincorporated Clark County. The land is zoned as commercial; however, transmission lines 34.5-kV or greater are an allowable use in all districts (zones/land use designations) in Clark County if they follow the conditions set forth by the Clark County Unified Development Code (the Code). The Code is outlined above in Section 3.9.2.3, "Local Plans and Policies." The proposed project would comply with these conditions; therefore, no impact would occur.

With the implementation of MM LU-1, MM HAZ-1, and MM HAZ-2, the proposed project would not conflict with any plans or policies, and impacts under this criterion would be reduced to less than significant.

NO IMPACT. Divides an Established Community. The proposed project would be constructed primarily in non-urbanized areas of the Mojave Desert. The project would abut a casino employee housing area in the Town of Primm in the place of the current 115-kV line but would not physically divide it; therefore, there would be no impact.

NO IMPACT. Conflicts with Clark County MSHCP. See Section 3.4, "Biological Resources," for a discussion of biological impacts resulting from the proposed project in the BCCE and potential conflicts with the Clark County MSHCP.

3.9.3.6 No Project / No Action Alternative

Adoption of the No Project Alternative would have no adverse effect on any applicable land use plans or policies. There would be no short or long-term effects on any land use plans or policies, livestock grazing management, AUMs allocated to livestock, or Special Management Areas. No impacts would occur.

3.9.3.7 Transmission Alternative Route A

Transmission Alternative Route A would bypass the segment of the proposed transmission line alignment between MP 1 and MP 7 and would be constructed entirely within a BLM-designated utility corridor, thus avoiding potential conflicts with the BCCE. With respect to land use, with the implementation of MM HAZ-1 to ensure compatibility with surrounding BCCE land uses, impacts resulting from Transmission Alternative Route A would therefore be less than the proposed project.

3.9.3.8 Transmission Alternative Route B

Similar to Transmission Alternative Route A, Transmission Alternative Route B would bypass the segment of the proposed transmission line that runs north and south near MP 2, outside of the BLM-designated utility corridor. Alternative B would be constructed entirely on lands within BLM-designated corridors, thus avoiding potential conflicts with the BCCE. With respect to land use, with the implementation of MM HAZ-1 to ensure compatibility with surrounding BCCE land uses, impacts resulting from Transmission Alternative Route B would therefore be less than the proposed project.

3.9.3.9 Transmission Alternative Route C

Transmission Alternative Route C would route the proposed transmission line off the existing SCE transmission ROW at MP 27, locating it around Ivanpah Dry Lake before reconnecting to the EITP route near MP 31. Alternative C would be constructed on BLM Las Vegas and BLM Needles lands designated as Open Public Lands, a Nevada Department of Transportation Corridor, and private lands in unincorporated Clark County land designated as commercial land. Transmission line construction is an allowable use on BLM land designated as Open Public Lands, as long as BLM determines that it is an appropriate use of the land. It is also an allowable use in Nevada Department of Transportation (NDOT) transportation corridors.

Adoption of Transmission Alternative C would temporarily restrict access to one mining claim during construction. See Section 3.6, "Geology, Soils, Minerals, and Paleontology," for impacts on mining.

3.9.3.10 Transmission Alternative Route D and Subalternative E

Alternative D would deviate from the proposed project at the northeastern edge of the Ivanpah Dry Lake at MP 27 traveling around Ivanpah Dry Lake and rejoining the proposed route at MP 30. Alternative D and Subalternative E would be constructed on lands designated as Open Public Lands and Recreation and on private unincorporated Clark County lands designated as vacant. Transmission line construction is an allowable use on the BLM land designated as recreation because the land is located within in an existing BLM-designated utility corridor, and on BLM lands designated as Open Public Lands so long as BLM determines that it is an appropriate use of the land.

Transmission Alternative Routes D and Subalternative E would have no impact on land use.

3.9.3.11 Telecommunication Alternative (Golf Course)

The Golf Course Telecommunication Alternative is a 20-mile alternative that is broken into two segments for discussion purposes. The first segment is a 10-mile segment that would proceed from the town of Nipton to I-15 (MP 1 to MP10) along the north side of Nipton Road, parallel to the northern boundary of the Mojave National Preserve. Approximately 1 mile would be constructed above ground on the existing Nipton 33-kV Line and 9 miles would be constructed underground alongside Nipton Road approximately 3 feet from the pavement within the ROW of Nipton Road. This segment of the Golf Course Alternative would cross BLM lands designated as Preservation/Recreation and unincorporated San Bernardino County lands designated as commercial.

The second segment is a 10-mile segment that would stretch from the intersection of Nipton Road and I-15 to the Primm Golf Course to the Ivanpah Substation on the existing Nipton 33-kV Line and the to-be-constructed EITP 230-kV transmission line entirely on BLM-managed lands. The BLM-managed lands crossed by this segment are designated as Open Public Lands. Additionally, this alternative would cross the inactive Valley View Grazing Allotment and the active Clark Mountain Grazing Allotment. ~~These allotments are not currently under grazing and no impacts on~~ Although the Clark Mountain Grazing Allotment is active, grazing would ~~occur~~ not be restricted during construction and impacts would therefore be minor, temporary, and less than significant as a result of the adoption of the Golf Course Telecommunication Alternative.

Telecommunication Alternative (Golf Course Alternative) would cross one mining claim. Adoption of the Golf Course Alternative would temporarily restrict access of mining claim holders to their mining claims during construction, a short term, negligible, localized impact.

Adoption of the Golf Course Alternative would temporarily restrict access of mining claim holders to their mining claims during construction; therefore, the Golf Course Alternative would have a short-term, negligible impact on mining in the area.

3.9.3.12 Telecommunication Alternative (Mountain Pass)

The Mountain Pass Telecommunication Alternative is a 25-mile alternative that is broken into two segments for discussion purposes. The first segment is a 10-mile segment that would proceed from the town of Nipton to I-15 (MP 1 to MP 10) along the north side of Nipton Road, parallel to the northern boundary of the Mojave National Preserve. Approximately 1.0 mile would be constructed above ground on the existing Nipton 33-kV Line and 9.0 miles would be constructed underground alongside Nipton Road approximately 3 feet from the pavement within the ROW of Nipton Road. This segment of the Mountain Pass Alternative would cross BLM lands designated as Preservation/Recreation.

The second segment is a 15-mile segment that would begin at I-15 and continue to the town of Mountain Pass and then to the Ivanpah Substation on the existing Nipton 33-kV Line. Approximately 500 feet of underground conduit would be installed from the Ivanpah Substation to the last Nipton 33-kV distribution line pole.

Telecommunication Alternative (Mountain Pass) would cross four mining claims. Adoption of the Mountain Pass Alternative would temporarily restrict access of mining claim holders to their mining claims during construction; therefore, the Mountain Pass Alternative would have a short-term, negligible adverse impact on mining in the area.

The BLM and NPS lands crossed by the Mountain Pass Alternative are designated as Open Public Lands, and the San Bernardino County Land is designated as Vacant and Industrial. As the Mountain Pass Alternative would be constructed on the existing Nipton 33-kV distribution line within an existing ROW, and within the boundary of the existing ROW for Nipton Road; and ~~as~~ although the Clark Mountain Grazing Allotment is ~~not~~ currently ~~being grazed, other than those discussed above, no additional~~ active, grazing would not be restricted during construction, and impacts would ~~occur~~ therefore be temporary, minor, and less than significant as a result of the adoption of the Mountain Pass Telecommunication Alternative.

3.9.4 Mitigation Measures

MM LU-1: Obtain Approval from Clark County and the City of Boulder City for Activities Outside of BLM-Designated Utility Corridors in the BCCE. Prior to construction, the applicant must consult with and obtain permission from Clark County and the City of Boulder City regarding construction outside of BLM-designated utility corridors in the BCCE. In addition, the applicant will comply with all land use restrictions, such as speed limits, in consultation with the BCCE, and will fully comply with the Amendment to the Interlocal Agreement,

including Exhibit D. The applicant will submit a record of this consultation to the BLM and the CPUC prior to construction.

3.9.5 Whole of the Action / Cumulative Action

~~Below is a brief summary of information related to land use in the ISEGS Final Staff Assessment / Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

~~The Final Staff Assessment (FSA)/ Draft Environmental Impact Statement (DEIS) was structured differently from this document (EITP DEIS/DEIR). Grazing Allotments and AUMs allocated for livestock were disused in a stand alone chapter in the Ivanpah Solar Electric Generating System (ISEGS) document called Livestock Grazing; therefore, ISEGS impacts on resource areas relative to this chapter of the EITP DEIS/DEIR will be discussed in two parts, which will be Land Use and Agriculture and Livestock Grazing.~~

~~ISEGS Designated Areas impacts and mitigation measures are discussed in the Biological Resources section of this document (3.4.5 Biological Resources) Designated Areas impacts and mitigation measures were discussed in the Biological Resources section of the ISEGS FSA/DEIS.~~

Information on land use related to the ISEGS project is summarized below. Because the ISEGS documents were structured differently than this document, ISEGS information related to this EITP section is presented in two parts. The first is summarized from the ISEGS Land Use and Agriculture section, and the second is summarized from the Livestock Grazing section. For each part, the setting for the ISEGS project is described, followed by methodologies used and summaries of the impact conclusions presented in the CEC's Final Staff Assessment (FSA), Addendum, and Final Decision and the BLM's Final EIS. Required mitigation measures and conditions of certification are listed.

3.9.5.1 Setting

Land Use and Agriculture

The proposed ISEGS project would be located in the Mojave Desert, in San Bernardino County, 4.5 miles southwest of Primm, Nevada, and 1.6 miles west of Ivanpah Dry Lake, entirely on public lands managed by the BLM. The proposed ISEGS project would be constructed on land governed by the CDCA Plan, and would require an amendment to the CDCA Plan for siting of the facility.

Livestock Grazing

The ISEGS site is located within the existing BLM Clark Mountain Allotment Grazing Lease, which is a perennial/ephemeral allotment. The allotment contains 97,560 acres of public lands. The approximately ~~4,073~~ 3,564 acre ISEGS site boundary is ~~approximately~~ less than 4 percent of the area of the allotment.

Applicable Laws, Regulations, and Standards

Due to the variation in project components and location between EITP and ISEGS, different laws, regulations, and standards would apply to ISEGS than those listed above in Section 3.9.2. Since ISEGS would be developed entirely within California on BLM land, the Nevada regulations associated with EITP would not apply. Laws, regulations, or standards that apply to the ISEGS project with respect to Land Use and Agriculture and Livestock Grazing are listed below.

Land Use and Agriculture

Law, regulation, or standard	Description
Federal	
Bureau of Land Management	California Desert Conservation Area (CDCA) Plan; Northern and Eastern Mojave Desert Management Plan Code of Federal Regulations Title- 40; Chap. V. Code of Federal Regulations Title 43; 1610.5-3, Part 2800 Federal Land Policy and Management Act (1976)
State	There are no state land use laws, ordinances, regulations, or standards for this project
Local	San Bernardino County General Plan San Bernardino County 2007 Development Code

Livestock Grazing

Law, regulation, or standard	Description
Federal	
Taylor Grazing Act of June 28, 1934	Congress passed the Taylor Grazing Act in 1934 to direct occupancy and use of public rangelands, to preserve natural resources from destruction or unnecessary injury, and to provide for the orderly use, improvement, and development of rangelands.
Federal Land Policy and Management Act (FLMPA, 1976)	Section 202 of FLPMA requires BLM to develop and maintain land use plans for public lands, which in turn identify lands that are available for the issuance of permits or leases for grazing. Subchapter IV provides for Range Management.
Public Rangelands Improvement Act	Defines rangeland, establishes a national policy to improve the condition of rangelands, requires a national inventory of rangelands, and authorizes funding for range improvement projects.
43 Code of Federal Regulations Part 4100	Regulations under which BLM administers its grazing program.
California Desert Conservation Area (CDCA) Plan	Defines Multiple-Use Classes for BLM-managed lands in the CDCA, which includes the land area encompassing the proposed project location.
Northern and Eastern Mojave Desert Management Area (NEM0)	An amendment to the CDCA Management Plan, the NEMO Plan establishes standards and guidelines for grazing activities in the NEMO.
Local	San Bernardino County General Plan San Bernardino County 2007 Development Code

3.9.5.2 Methodology

CEC FSA Methodology

The ISEGS FSA/DEIS evaluated potential environmental impacts of ISEGS on land use, agriculture, grazing allotments, and AUMs allocated to grazing in compliance with both CEQA and NEPA. The Land Use section of the EITP DEIS/DEIR does not include a discussion of impacts on Agriculture, as it was determined early in the environmental review process that no agricultural land would be impacted by EITP. CEQA criteria used to determine ISEGS impacts on land use did not differ from the criteria used to determine EITP impacts, as listed in Section 3.9.3.5. CEQA criteria used to determine ISGES impacts on agriculture are as follows:

- Converts Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency and the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey, to non-agricultural uses;

- Conflicts with existing zoning for agricultural use, or a Williamson Act Contract; and
- Involves other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use.

Because the project would be located on federal land, California state regulations which protect and manage farmlands, including livestock grazing, are not applicable to the proposed project area. The impact of the proposed project and alternatives on livestock grazing would be considered significant under CEQA if the result of the ISEGS' displacement of grazing cattle were to cause a significant impact on the environment or to livestock under the jurisdiction of California.

BLM FEIS Methodology

Under NEPA, the impact of the proposed project and alternatives on the Clark Mountain Allotment would be considered significant if they would involve changes in the existing environment which, due to their nature or location, could result in a significant reduction in foraging opportunities to plan communities on the ISEGS site or to the safety of livestock.

3.9.5.3 Impacts

CEC FSA Conclusions

Land Use and Agriculture

The California Energy Commission (CEC) has identified the following impacts related to land use and agriculture for the ISGES project:

- Staff considers the 100 percent loss of Utility Corridor BB as attributable to ISEGS to be an adverse direct impact; however, the impact is less than significant since there would be some remaining opportunity to route future utility lines through the construction logistics area in Corridor BB and through remaining portions of Corridor D.

Livestock Grazing

Under NEPA, the impact would be modification of the allotment boundaries, resulting in a minor 4 percent reduction in allotment acreage, which is not considered a significant adverse impact on foraging opportunities or to the safety of livestock. With respect to CEQA, there would not be a significant adverse impact because discontinuing livestock grazing at the ISEGS site would not result in damage to the desert environment or affect the safety of livestock.

BLM FEIS Conclusions

Similar to the CEC's conclusions in the FSA, the BLM concludes that the effects related to land use would be less than significant with the implementation of the mitigation measures listed below.

3.9.5.4 Conditions of Certification / Mitigation Measures

CEC FSA Conditions of Certification

Land Use and Agriculture

The ISEGS FSA/DEIS recommends that the following Conditions of Certification be required by the CEC and the BLM to lessen impacts to land use if the project is approved:

LAND-1. The project owner will obtain a ROW grant from the BLM. Among the conditions for obtaining the ROW grant, the applicant will provide the following:

A. Prior to issuance of any ROW grant, the project owner will submit a final Plan(s) of development that describes in detail the construction, operation, maintenance, and termination of the ROW and its associated improvements and/or facilities. The project owner will construct, operate, and maintain the facilities, improvements, and structures within this ROW in strict conformity with the final approved Plan of Development. The degree and scope of these plans will vary depending upon (1) the complexity of the ROW or its associated improvements and/or facilities, (2) the anticipated conflicts that require mitigation, and (3) additional technical information required by BLM's Authorized Officer and the Compliance Project Manager (CPM). The plans will be reviewed, and if appropriate, modified by the project owner until acceptable, and approved by BLM's Authorized Officer and the CPM. An approved Plan of Development will be made a part of the ROW grant. Any relocation, additional construction, or use that is not in accord with the approved Plan(s) of Development, will not be initiated without the prior written approval of BLM's Authorized Officer and the CPM.

B. A bond, acceptable to BLM's Authorized Officer, will be furnished by the project owner prior to the issuance of a Notice to Proceed with construction or at such earlier date as may be specified by BLM's Authorized Officer. The amount of this bond will be determined by BLM's Authorized Officer. This bond must be maintained in effect until removal of improvements and restoration of the ROW have been accepted by BLM's Authorized Officer and the CPM.

Verification: At least 30 days prior to the start of construction and prior to any Notice to Proceed with construction issued by BLM's Authorized Officer and the CPM, documentation of the following:

A. BLM's ROW Grant and final approved Plan of Development;

B. The bond satisfactory to BLM's Authorized Officer;

C. Certification that the project owner acknowledges that the ISEGS development and all related construction, operation, maintenance and closure activities are to be conducted in conformance with the approved Plan of Development and within the approved ROW boundaries for the life of the project.

LAND-2. The applicant's project description and associated construction plans will be revised to allow a minimum 20-foot buffer between the security and tortoise exclusion fence, and the proposed ROW boundary. Once the fencing is constructed, all inspection, monitoring, and maintenance activities required outside of the fencing will occur on lands included within this buffer area and ROW boundaries. Should project activities requiring the use of an area larger than the buffer be required (such as installation of new drainage structures one acre or more in size), the project owner will make application to the BLM for a Temporary Use Permit or additional ROW Grant may require additional environmental evaluation pursuant to the National Environmental Policy Act and the California Environmental Quality Act.

Verification: At least 60 days prior to the start of construction, the project owner will provide BLM's Authorized Officer and the CPM with a revised project description and construction plans specifying the inclusion of the buffer zone within the ROW boundaries. The project owner will also provide BLM's Authorized Officer and the CPM with

certification acknowledging that the ISEGS development and all related construction, operation, maintenance and closure activities are to be conducted within the ROW boundaries for the life of the project.

Livestock Grazing

The ISEGS project would pose no significant risk to grazing livestock if recommended mitigation measures were implemented. Speed limits of 10 miles per hour on unpaved roads and 25 mph on stabilized roads imposed for fugitive dust control, as would be required under **Air Quality Conductions of Certification AC-SC3 and AQ-SC7,** are expected to be effective in also protecting grazing livestock from vehicle strike.

Fencing of project construction areas and of permanent facilities used during operations would be required as a component of the Construction and Operation Site Security Plans as specified under **Hazardous Materials Conditions of Certification HAZ-4 and HAZ-5**. These Conditions of Certification would provide adequate mitigation measures for protection of livestock roaming areas near the project.

BLM FEIS Mitigation Measures

The BLM carries forward the same mitigation measures in the ISEGS FEIS as were discussed in the CEC/BLM FSA/DEIS with the exception that the CEC requires the applicant's revised project description and construction plans specifying the inclusion of the buffer zone within the ROW boundaries to be submitted sixty (60) days prior to the start of construction, and BLM requires the updated plans thirty (30) days prior to the start of construction.

3.9.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for land use and agricultural resources were based on similar significance criteria that evaluated the extent to which the proposed projects would impact land uses in the project area and convert agricultural lands to nonagricultural uses.

The CEC and the BLM considered the loss of Utility Corridor BB due to the construction and operation of ISEGS to be an adverse direct impact; however, it was considered less than significant because future utility lines could be routed through other existing corridors in the vicinity. The EITP is located largely in an existing BLM utility corridor, so impacts to existing land uses would also be less than significant or have no impact. With respect to the BCCE, the CPUC and the BLM concluded that impacts would be less than significant with the implementation of MM LU-1. ISEGS would have no impact on the BCCE because it would be located over 30 miles away. Therefore, the combined impact of ISEGS and EITP on land use would be less than significant.

Regarding grazing allotments, ISEGS would reduce the Clark Mountain Grazing Allotment by 4 percent of the acreage, which is not considered a significant adverse impact on foraging opportunities or the safety of livestock. Similarly, the EITP would reduce the Clark Mountain Grazing Allotment by less than 0.5 percent. Therefore, EITP and ISEGS combined would contribute to less than 4.5 percent acreage reduction. This impact, although adverse, is not considered a significant impact under either CEQA or NEPA.

With respect to the proposed SNSA, both ISEGS and the EITP would comply with all FAA requirements and regulations by the time the SNSA is constructed. Therefore, the combined impact of the two projects on the future SNSA would be less than significant.

Together, impacts from the two projects would have an adverse contribution or less than significant contribution with mitigation on land use and agriculture. See also Chapter 5 for a discussion of cumulative impacts.

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3.10 Noise

This section describes the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to noise.

3.10.1 Environmental Setting

Noise

To describe environmental noise at the regional and local levels, and to assess impacts on areas sensitive to community noise, an understanding of noise fundamentals is necessary. Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. There are several ways to measure noise, depending on the source, the receiver, and the reason for the noise measurement. The most common metric is the overall A-weighted sound level measurement that has been adopted by regulatory bodies worldwide. The A-weighted network measures sound similarly to how a person perceives sound, thus achieving good correlation with acceptable and unacceptable sound levels. A-weighted sound levels are reported in units of A-weighted decibels and denoted as dBA.

A-weighted sound levels are typically measured or presented as the equivalent sound pressure level (L_{eq}), which is the logarithmic average noise energy level due to all sources (for example, the ambient noise level in addition to construction and traffic noise) in a given area for a defined period of time (for example, 1 hour or 24 hours). The L_{eq} is commonly used to measure steady-state sound or noise that is usually dominant. Statistical methods are used to capture the dynamics of a changing acoustical environment. Statistical measurements are typically denoted by L_{xx}, where $_{xx}$ represents the percentage of time the sound level is exceeded. For example, L_{90} represents the noise level exceeded during 90 percent of the measurement period. Similarly, L_{10} represents the noise level exceeded for 10 percent of the measurement period. The relative A-weighted noise levels of common sounds measured in the environment and industry for various qualitative sound levels are provided in Table 3.10-1.

Table 3.10-1 Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance (feet)	A-Weighted Sound Level in Decibels (dBA)	Qualitative Description
Carrier deck jet3 operation Jet takeoff (200 feet)	140 130 120	Pain threshold
Auto horn (3 feet) Jet takeoff (1,000 feet) Shout (0.5 feet)	110 100	Maximum vocal effort
N.Y. subway station (50 feet) Heavy truck (50 feet)	90	Very annoying; hearing damage (8-hr, continuous exposure)
Pneumatic drill (50 feet) Freight train (50 feet) Freeway traffic (50 feet)	80 70 to 80 70	Annoying Intrusive (telephone use difficult)
Air conditioning unit (20 feet) Light auto traffic (50 feet) Living room/Bedroom	60 50 40	Quiet
Library/Soft whisper (5 feet) Broadcasting/Recording studio	30 20 10	Very quiet Just audible

Source: NYSDEC 2003 (Adapted from Table E.)

Another metric used to determine the impact of environmental noise considers the differences in human responses to daytime and nighttime noise levels. During the evening and at night, exterior background noises are generally lower than during the day. However, most household noise also decreases at night and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are therefore more sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the Daytime-Nighttime Noise Level (DNL, also abbreviated as L_{dn}) and Community Noise Equivalent Level (CNEL) metrics were developed. The DNL accounts for the greater annoyance of noise during the night (10 p.m. to 7 a.m.). The CNEL accounts for the greater annoyance of noise during the evening (7 p.m. to 10 p.m.) and nighttime hours.

The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, learning
- Physiological effects such as startling and hearing loss

In most cases, environmental noise may produce effects in the first two categories only. No completely satisfactory way exists to measure the subjective effects of noise or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is primarily due to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is to compare it to the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the previously existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual.

The general human response to changes in noise levels that are similar in frequency content (for example, comparing increases in continuous [L_{eq}] traffic noise levels) is summarized as follows:

- A 3-decibel (dBA) change in sound level is a barely noticeable difference.
- A 5-dBA change in sound level is typically noticeable.
- A 10-dBA change is perceived by the listener as a doubling in loudness.

Vibration

~~In addition to noise, construction and traffic can generate low levels of vibration which is also reported in decibels and denoted as VdB.~~ In addition to noise, construction and traffic can generate low levels of vibration. Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. Vibratory motion is commonly described by identifying peak particle velocity, which is generally accepted as the most appropriate descriptor for evaluating building damage. However, human response to vibration is usually assessed using amplitude indicators (root-mean square), or vibration velocity levels measured in inches per second or in decibels (VdB). The background velocity level in residential areas is usually 50 VdB. Although the perceptibility threshold is about 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB.

One of the major problems in developing suitable criteria for ground-borne vibration is that there has been relatively little research into human response to vibration, or, in particular, into human annoyance with building vibration. Statistical studies of residential annoyance thresholds cited by the FTA conclude that a vibration velocity level exceeding 75 VdB is unacceptable for a repetitive vibration source (FTA 2006).

In the following noise analysis, data were used extensively from the Proponent's Environmental Assessment for the Eldorado–Ivanpah 230-kV Transmission Project, dated May 2009.

3.10.1.1 Regional Setting

The proposed project would be located in a primarily rural area, although the proposed transmission line route would pass through or be adjacent to the community of Primm, Nevada. A detailed description of the land uses and land use designations for the proposed project are discussed in Section 3.9, "Land Use."

3.10.1.2 Local Setting

Ambient Noise Surveys

Ambient noise surveys were conducted on November 20 and 21, 2008, at three representative monitoring locations (sites 1, 2, and 3), in order to assess the existing ambient noise levels of the representative locations (SCE 2009). Surveys were conducted using continuous unattended long-term monitoring stations. Two of the sites were monitored for 24 hours each; one of the sites was monitored for 18 hours (see Figure 3.10-1).

Weather conditions during the survey, as measured in Henderson, Nevada, consisted of clear skies, wind speeds between 4 and 10 miles per hour, temperatures between 45 and 72 degrees Fahrenheit, and relative humidity between 15 and 37 percent.

Larson Davis 820 Type 1 (precision) sound level meters were used. The meters were factory calibrated within the previous 12 months and were field calibrated prior to and after each measurement series with a Larson Davis CAL200 field calibrator. Microphones were attached to tripods at a height of approximately 5 feet. Shrouds and windscreens were used to protect the microphones from moisture and wind. A shroud and windscreen were not available for the Eldorado Substation site; however, weather conditions were such that the absence of protective equipment should not have impacted the results (i.e., calm winds and no rain).

A description of each site, the date each survey was conducted, and a summary of the collected data are presented in Table 3.10-2.

Table 3.10-2 November 20 and 21, 2008, Noise Survey Results Summary (dBA)

Noise Monitoring Location	Description	Primary Noise Source	Monitoring Period	L_{dn}	L_{eq} (24 hr)	Max Hourly L_{eq}	Min Hourly L_{eq}
1 Primm Valley Golf Club	Rural	I-15, golf course activities	24 hours	62	55	58	45
2 Desert Oasis Apartment Complex	Residential	I-15, truck stop	24 hours	58	51	55	48
3 Eldorado Substation	Rural	Substation	18 hours	56	49[a]	51	47

Note:
[a]Monitoring at the Eldorado Substation was limited to 18 hours; therefore, the L_{dn} and the 24-hour L_{eq} were calculated using noise levels from representative periods for the missing hours. Given the relatively steady noise level (indicated by close agreement between the Max and Min L_{eq}), this assumption is reasonable.

Key:
dBA = Decibels A-scale
L_{dn} = Daytime-Nighttime Noise Level
L_{eq} = equivalent sound pressure level

Transmission Line

Proposed Transmission Line

The proposed transmission line would be constructed from the existing Eldorado Substation to the location of the future Ivanpah Substation. The only residences within the project area are located in Primm, Nevada, at the Desert

Oasis Apartment Complex, which contains mobile homes as well as apartments. The complex is approximately 50 feet from the proposed transmission line route. As noted in Section 3.11, "Public Services and Utilities," there are no other sensitive receptors such as hospitals, libraries, schools, places of worship, or other facilities in the project area. With the exception of the location of the transmission line through the Town of Primm, the route setting is rural and undeveloped.

The noise levels measured during the noise survey at the Eldorado Substation are representative of the noise levels at the northern end of the transmission line. The minimum hourly L_{eq} and L_{90} noise levels measured at the substation during the noise survey were 47 dBA and 46 dBA, respectively. The noise levels measured during the noise survey at the Desert Oasis Apartment Complex are representative of the noise levels through the center portion of the transmission line. The minimum hourly L_{eq} and L_{90} noise levels measured at the Desert Oasis Apartment Complex were 48 dBA and 46 dBA, respectively. The noise levels measured during the noise survey at the Primm Valley Golf Club are representative of the noise levels at the southern end of the transmission line. The minimum hourly L_{eq} and L_{90} noise levels measured at the Primm Valley Golf Club during the noise survey were 45 dBA and 41 dBA, respectively.

Transmission Line Alternatives

The transmission line and telecommunication alternatives would be constructed and operated in noise conditions similar to those associated with the proposed project; therefore, the measured noise levels throughout the project vicinity as reported for the proposed transmission line would also apply to the transmission line and telecommunication alternatives.

Substations

Eldorado Substation

The Eldorado Substation is an existing substation. No residences are located within 5 miles. The nearest receptors would be recreational users on the Eldorado Dry Lake, north of the substation, 3.5 miles distant at its closest point. There are no hospitals, libraries, schools, places of worship, or other facilities in the study area. The setting is rural and undeveloped. The minimum hourly L_{eq} and L_{90} noise levels measured at the Eldorado Substation during the noise survey were 47 dBA and 46 dBA, respectively.

Ivanpah Substation

The new Ivanpah Substation would be located at the south end of the proposed transmission line. The closest residences to the Ivanpah Substation are those at the Desert Oasis Apartment Complex, roughly 6.7 miles to the northeast. The nearest receptors are at the Primm Valley Golf Club, a distance of 2.4 miles. No hospitals, libraries, schools, places of worship, or other facilities are located in the project area. The setting is rural and undeveloped.

The noise levels measured during the noise survey at the Primm Valley Golf Club are representative of the noise levels in the project area nearest the proposed Ivanpah Substation. The minimum hourly L_{eq} and L_{90} noise levels measured at the substation during the noise survey were 45 dBA and 41 dBA, respectively.

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Figure 3.10-1
Eldorado-Ivanpah Transmission Project

Noise Monitoring Locations

Goodsprings
Jean
Primm
Nipton
ELDORADO
IVANPAH
MT. PASS
Searchlight
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Quite Lake (Dry)
Nipton Road
CLARK CO.
SAN BERNARDINO CO.
NEVADA
CALIFORNIA
MOJAVE NATURAL PRESERVE
Monitoring Site 3 - Eldorado Substation
Modeling Location 4 - McCullough Pass
Monitoring Site 2 - Desert Oasis Apartment Complex
Modeling Location 1 - Desert Oasis Apartment Complex
Modeling Location 3 - Ivanpah Lake
Modeling Location 2 - Primm Valley Golf Course
Monitoring Site 1 - Primm Valley Golf Club
A
B
C
D
E
53
161
604
15
95
164
165

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Noise Monitoring Location
- Noise Modeling Location
- Half Mile buffer
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road
- BLM Land
- NPS
- Southern Nevada Supplemental Airport

N

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Miles

March 2010

NV UT CO CA AZ NM

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3.10.2 Applicable Laws, Regulations, and Standards

Federal

No federal regulations limit overall environmental noise levels, but several federal guidance documents address environmental noise and regulations for specific sources (for example, aircraft or federally funded highways).

The only energy-facility-specific requirements are those of the Federal Energy Regulatory Commission (FERC) for interstate electrical transmission lines, natural gas pipelines, and petroleum pipelines. The FERC limits specifically address compressor facilities associated with pipelines under FERC jurisdiction. Under these regulations, the noise attributable to any new natural gas compressor station; added compression to an existing station; or any modification, upgrade, or update of an existing station must not exceed an L_{dn} of 55 dBA at any pre-existing noise sensitive area (FERC 2002).

Federal highway and aircraft guidelines and regulations have been established by Federal Highway Administration (FHWA; United States Code of Federal Regulations [CFR] Title 23 Part 772) and Federal Aviation Administration (FAA) regulations (CFR Title 18 Part 150). Federal guidelines and regulations are summarized in Table 3.10-3.

Table 3.10-3 Federal Guidelines and Regulations for Exterior Noise (dBA)

Agency	$L_{eq\ (1)}$	L_{dn}
Federal Energy Regulatory Commission	[49]	55
Federal Highway Administration	67	[67]
Federal Aviation Administration	[59]	65
U.S. Department of Transportation – Federal Rail and Transit Authorities[a,b]	Sliding scale; refer to Figure 3.10-2	Sliding scale; refer to Figure 3.10-2
U.S. Environmental Protection Agency[c]	[49]	55
U.S. Department of Housing and Urban Development[d]	[59]	65

Sources:
[a]FRA 2005 [Updated to latest revision 2005]
[b]FTA 2006
[c]U.S. EPA 1974
[d]CFR Title 24 Part 51B (U.S. Department of Housing and Urban Development 1991)

Note: Brackets around numbers (e.g. [59]) indicate calculated equivalent standard. Because FHWA regulates peak noise level, the DNL is assumed equivalent to the peak noise hour.

Table 3.10-3 refers to Figure 3.10-2 U.S. Department of Transportation, Federal Railroad Administration (FRA) and U.S. Department of Transportation, Federal Transit Administration (FTA) Allowable Increase in Cumulative Noise Level (Cumulative dBA). The noise impact criteria in Figure 3.10-2 are based on comparison of the existing outdoor noise levels and the future outdoor noise levels from the proposed project. The Y axis is the increase in noise level in Cumulative dBA over the existing noise level on the X axis. Category 1 land uses include tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use. Category 2 land uses include residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance (FTA 2006).

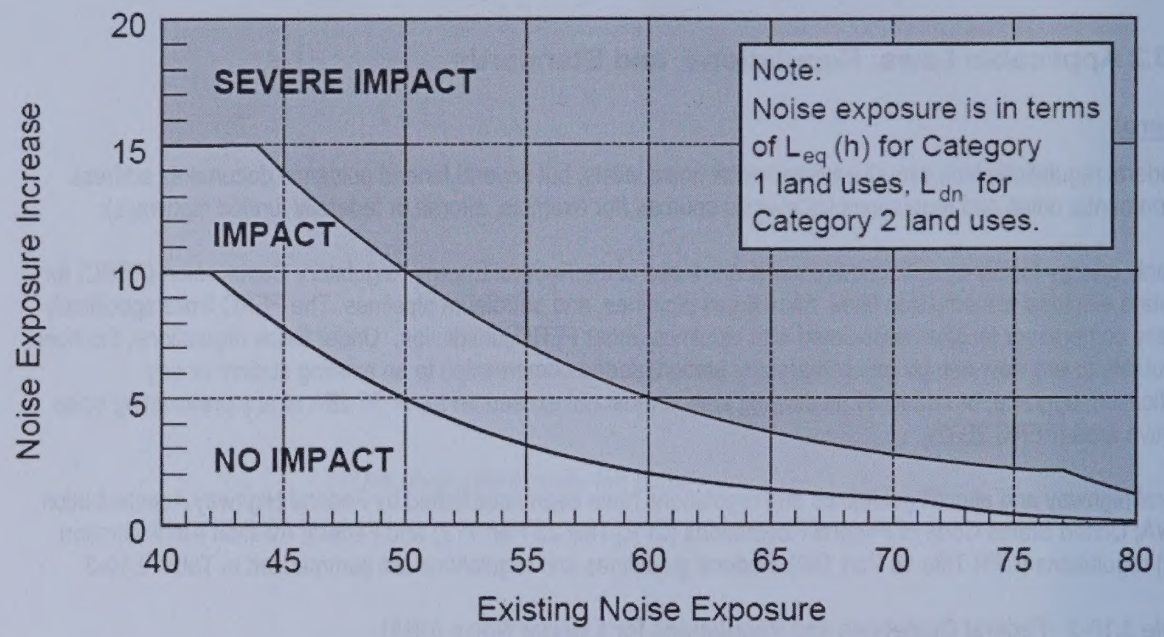

Figure 3.10-2 FRA and FTA Allowable Increase in Cumulative Noise Level
(Note: Residential uses are included in Category 2)

Department of Interior, Bureau of Land Management

The National Environmental Policy Act (NEPA) of 1969 requires an analysis of local ambient noise levels and effects associated with elevated noise levels in a proposed project area; however, NEPA does not specify a threshold for "significant adverse effect" for noise.

State

California Public Utilities Commission

The CPUC will evaluate the proposed project's noise impacts according to the requirements of CEQA in both California and Nevada. CEQA does not specify a threshold for "substantial increase" for noise. The CPUC General Order (GO) No. 131-D, Section XIV B, clarifies that "local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Due to this GO, the public utilities are directed to consider local regulations and consult with local agencies; however, the counties and cities do not have discretionary jurisdiction over the proposed project

Public Utilities Commission of Nevada

The proposed project would also require approval from the Public Utilities Commission of Nevada (PUCN). The construction of a utility facility, defined as a transmission line that is 200-kV or more, requires a permit by the PUCN under the Utility Environmental Protection Act (UEPA) according to the Nevada Revised Statutes (NRS) 704.820 through 704.900. However, replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility (NRS 704.865).

Regional and Local

Although the proposed project is exempt from local land use and zoning regulations and discretionary permitting under GO No. 131-D, the applicant intends to develop facility designs that are compatible with local plans and zoning

to the extent practicable. Therefore, local plans, laws, ordinances, regulations, and standards related to noise adopted by each of the jurisdictions through which the proposed transmission project would pass were reviewed. Results of the review are presented in Tables 3.10-4 and 3.10-5.

Table 3.10-4 Local Plans, Laws, Ordinances, Regulations, and Standards During Construction by Jurisdiction

Jurisdiction	Source	Standard Construction Hours	Permissible Noise Levels		
			Land Use	Hours	Exterior Noise Level Limits (dBA)
San Bernardino County	Sec 87.0905 (e) Exempt noises. (1) (C) Temporary construction, repair, or demolition activities between 7 a.m. and 7 p.m., except Sundays and federal holidays.	Mon-Sat 7am-7pm	Any	Mon–Sat 7 a.m.– 7 p.m.	Exempt
Clark County	Sec 30.68.020 (h): Requirements of this section do not apply to construction and/or demolition activities when conducted during daytime hours.	Daytime	Any	Daytime	Do not apply
Town of Primm	No construction noise guidelines specified.	NS	NS	NS	NS
Boulder City	No construction noise guidelines specified.	NS	NS	NS	NS

Key:
NS = Not specified

Table 3.10-5 Local Plans, Laws, Ordinances, Regulations, and Standards During Operation by Jurisdiction

Jurisdiction	Source	Permissible Noise Levels		
		Land Use	Hours	Exterior Noise Level Limits (dBA)
San Bernardino County	Sec 87.0905 (b) (1): Areas within San Bernardino County shall be designated as "noise-impacted" if exposed to existing or projected future exterior noise levels from ... stationary sources exceeding the standards listed. (2) No person shall operate or cause to be operated any source of sound at any location or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed: (A) The noise standard for that receiving land use for a cumulative period of more than 30 minutes in any hour, or (B) The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour, or (C) The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or (D) The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or (E) The noise standard plus 20 dBA for any period of time.	Other Commercial Industrial	Anytime Anytime	60 L_{eq} 70 L_{eq}

Table 3.10-5 Local Plans, Laws, Ordinances, Regulations, and Standards During Operation by Jurisdiction

Jurisdiction	Source	Permissible Noise Levels		
		Land Use	Hours	Exterior Noise Level Limits (dBA)
Clark County	Sec 30.68.020 (b): The maximum permissible sound pressure level of any continuous, regular, or frequency source of sound produced by any activity shall be established by time period and type of zoning district per Table 30.68-1 [in the Clark County regulations].	Residential, Business and Industrial	Depends on octave band frequency.	Depends on octave band frequency.
	Sec 30.68.020 (e): Impulsive type noises shall be subject to the maximum permitted sound level standards described in Table 30.68-2, provided they are capable of being accurately measured with the equipment described above.	Residential	Daytime	56
		Business and Industrial	Nighttime	46
			Daytime	65
			Nighttime	61
Town of Primm	No operation noise guidelines specified.	NS	NS	NS
Boulder City	No operation noise guidelines specified.	NS	NS	NS

Key:
NS – Not Specified
Octave Band - A segment of the frequency spectrum separated by an octave.

3.10.3 Impact Analysis

This section defines the methodology used to evaluate impacts for noise, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.10.4.

3.10.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to noise would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

3.10.3.2 CEQA Impact Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. cause the exposure of persons to or generation of noise levels in excess of standards established in local general plans or noise ordinances;

b. cause the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (vibration of 75 VdB ~~vibration velocity level in decibels [VdB]) is generally considered intrusive for residential uses) Vibration velocity levels are commonly reported in decibels relative to a level of 1x10-6 inches per second and denoted as VdB~~);

c. cause a substantial permanent increase in ambient noise in the project vicinity;

d. cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity; or

e. for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, expose people residing or working in the project area to excessive noise levels.

3.10.3.3 Methodology

Construction Noise

To evaluate potential noise impacts due to construction of the transmission line and substation, reference noise levels were obtained from the Roadway Construction Noise Model User's Guide (FHWA 2006), which provides a comprehensive assessment of noise levels from construction equipment. Based on the reference values in the guide and the list of construction equipment to be used on the project, the loudest equipment would generally emit noise in the range of 80 to 90 dBA at 50 feet, with usage factors of 40 percent to 50 percent that account for the fraction of time that the equipment is in use over the specified time period. Noise at any specific receptor is typically dominated by the closest and loudest equipment. For the EITP, the type of construction equipment and the number of equipment pieces near any specific receptor location would vary over time. To provide a reasonable and conservative estimate of construction noise, the following scenario was modeled:

- One piece of equipment generating a reference noise level of 85 dBA (at 50 feet distance with a 40 percent usage factor) located on the transmission line route or the substation property line.
- Two pieces of equipment generating reference 85 dBA noise levels located 50 feet farther away on the transmission line route or the substation property line.
- Two additional pieces of equipment generating reference 85 dBA noise levels located 100 feet farther away on the transmission line route or the substation property line.

Construction equipment noise levels at various distances, based on this scenario, are presented in Table 3.10-6.

Table 3.10-6 Construction Equipment Noise Levels versus Distance

Distance from Route or Substation Property Line (feet)	L_{eq} Noise Level (dBA)
50	83
100	79
200	74
400	69
800	63
1,600	58
3,200	52
6,400	46

Source: SCE 2009

In addition to the equipment discussed above, project construction noise would also be generated from the operation of a concrete batch plant and helicopters used for tower construction. The existing concrete batch plant located off the I-15 freeway at the Yates Well Road interchange near the Primm Valley Golf Course would be used during construction. The facility is located approximately 0.5 miles from the Primm Valley Golf Club and 5 miles from the Desert Oasis Apartment Complex. The existing concrete batch plant was operating during the noise monitoring that was conducted at the golf club on November 20 and 21, 2008. Noise from the facility was not noticeable over the traffic noise from I-15.

If helicopters are used for transmission line tower construction, noise from the helicopters operated on a regular basis would be audible at staging areas, at tower construction sites, and along flight paths. Helicopters would pick up the towers from staging areas and place them at each location. Using helicopters would allow tower placement to be performed in a relatively short time, with an average flying time of 4 to 6 minutes between two sites. For example, 24 towers for 230-kV transmission lines could be constructed over a 6-mile span in a 2- to 3-day period.

In general, heavy-duty helicopters would be used during construction in remote locations. These locations would be less likely to be near populated areas as compared to locations accessible by truck. Available data indicate that the sound exposure level (SEL) from the overflight of one heavy-duty helicopter flying at an elevation of 1,000 feet would likely be in the range of 85 to 93 dBA. This corresponds to an hourly L_{eq} of 49 to 57 dBA.

Light-duty helicopters may also be used during construction. Light-duty helicopters would be smaller and generate an SEL of 80 to 85 dBA for an overflight at 1,000 feet elevation. This corresponds to an hourly L_{eq} of 44 to 49 dBA for the light-duty helicopters.

Transmission Line Corona Noise

To evaluate the noise impact due to corona, transmission line corona noise levels were calculated based on the Electric Power Research Institute Electromagnetic Workstation ENVIRO (version 3.52) modeling program. Corona is the noise generated from the strong electric field at the surface of a high voltage power line conductor ionizing the nearby air, resulting in an audible continuous low level noise or 'buzz.' The proposed transmission line was evaluated for corona noise at four representative locations. Location 1, Desert Oasis Apartment Complex, is within 0.5 miles of the transmission line. Location 2, Primm Valley Golf Club, is outside of the 0.5-mile buffer. Location 3, Ivanpah Lake, is adjacent to recreational users of the area. Location 4, McCullough Pass, was selected for its highest elevation and greatest transmission line activity along the proposed transmission line.

For the modeling input parameters, a 230-kV double-circuit tower structure, 28-foot minimum ground clearance, and location-specific elevations were used to demonstrate the most conservative corona noise results for the proposed transmission line. The modeling results for each location are shown below in Table 3.10-7.

Table 3.10-7 Corona Noise Modeling Results Summary (dBA)

Corona Noise Modeling Location	Weather Conditions	Directly Under Tower	50 Feet from Center of Tower	100 Feet from Center of Tower	200 Feet from Center of Tower
1 Desert Oasis Apartment Complex	Fair	2	0	0	0
	Foul	27	24	21	18
2 Primm Valley Golf Club	Fair	2	0	0	0
	Foul	27	24	21	18
3 Ivanpah Lake	Fair	2	0	0	0
	Foul	27	24	21	18
4 McCullough Pass	Fair	4	2	0	0
	Foul	29	27	24	21

Source: SCE 2009
Note:
Results are calculated based on the Electric Power Research Institute Electromagnetic Workstation ENVIRO (version 3.52) modeling program. ENVIRO program results report as 0.0 dBA when corona noise calculations equal less than 0.1 dBA.
dBA = A-weighted decibel

Maintenance activities associated with the transmission line, substations, and the telecommunication system would typically result in noise levels below those associated with construction-related activities, and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and be of shorter duration than construction activities. Maintenance activities are primarily inspection-related (for example, annual inspection of the transmission line from vehicles). Other maintenance activities, including washing of insulators to ensure proper function, would be conducted on an as-needed basis but are anticipated to occur less than once per year.

Noise associated with maintenance activities is anticipated to be less than construction noise levels. Because the noise level estimates presented for construction are greater than the range of noise levels likely to be associated with maintenance activities, the construction noise assessments provided in this section adequately address the noise levels and potential impacts that would be associated with maintenance activities. As with construction noise, the applicant would use noise reduction measures to be compatible with local plans and zoning to the extent practicable.

3.10.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to noise:

APM NOI-1: Compliance with Local Noise Ordinances. The proposed construction would comply with local noise ordinances. There may be a need to work outside the aforementioned local ordinances to take advantage of low electrical draw periods during the nighttime hours. The applicant would comply with variance procedures requested by local authorities if required.

APM NOI-2: Construction Equipment Working Order. Construction equipment would be in good working order.

APM NOI-3: Construction Equipment Maintenance. Construction equipment would be maintained per manufacturer's recommendations.

APM NOI-4: Construction Equipment Muffled. Construction equipment would be adequately muffled.

APM NOI-5: Construction Equipment Idling Minimized. Idling of construction equipment and vehicles would be minimized during the construction.

APM NOI-6: Hearing Protection for Workers. Workers would be provided appropriate hearing protection, if necessary, as described in the Health and Safety Plan.

3.10.3.5 Proposed Project / Proposed Action

Construction

Eldorado–Ivanpah Transmission Line

Construction of the transmission line would produce noise that would affect residences located at the Desert Oasis Apartment Complex due to the operation of construction equipment. The Federal Transit Administration (FTA) provides guidelines for reasonable criteria for assessment of construction noise (FTA 2006), which indicate that construction noise that exceeds a 1-hour L_{eq} of 90 dBA or an 8-hour L_{eq} of 80 dBA during the day would provoke adverse community reaction. The apartments are located between 50 and 100 feet from the transmission line, which would result in noise levels between 83 and 79 dBA, respectively, during construction. The apartment complex is separated from potential construction activities by an 8-foot solid concrete block wall. Typically, such a wall provides a minimum 5 to 10 dBA noise level reduction, provided it blocks the line of sight between the noise source and receiver. This would result in estimated construction noise levels between 69 and 78 dBA.

Construction activities would be limited to daytime hours, and Clark County regulations provide an exemption for noise from daytime construction activities. The applicant has also committed to complying with local noise ordinances (APM NOI-1); maintaining construction equipment in working order (APM NOI-2) and adhering to the manufacturer's maintenance recommendations (APM NOI -3); muffling construction equipment (APM NOI-4); and minimizing the amount of time that equipment is idled (APM NOI-5). In addition, the application would have to implement MM NOI-1 (Conduct Construction Activities during Daytime Hours) to minimize the potential impacts to residents of the Desert Oasis Apartment Complex. Impacts would be localized at receptors along the transmission line route and would be short-term.

Ivanpah Substation

The Ivanpah Substation would be located in San Bernardino County, where temporary construction noise is exempt from exterior noise level limits. Because there are no residences near the Ivanpah Substation that would be affected by construction noise, there would be no adverse impact due to noise during its construction. The nearest residences are approximately 6.7 miles from the Ivanpah Substation. The nearest noise receptors are at the Primm Valley Golf Club, more than 2.4 miles from the Ivanpah Substation, resulting in a potential noise level during construction of less than 46 dBA.

Eldorado Substation

Because there are no residences within 5 miles of this substation, there would be no adverse impact due to noise during its construction. The nearest receptors would be recreational users on Eldorado Dry Lake, located 3.5 miles north of the substation at the closest point. The resulting noise level at this location would be less than the ambient noise level. No hospitals, libraries, schools, places of worship, or other facilities are within the project area. The setting is rural and undeveloped.

Telecommunications Line

Stringing the overhead fiber optic cable and installing the fiber optic cable in existing and new underground conduit for the telecommunications line would not result in adverse noise impacts. Fiber optic cable installation equipment typically generates less noise than equipment used to install transmission lines, and the telecommunications path would not be located in the proximity of noise receptors.

Operation & Maintenance

Eldorado–Ivanpah Transmission Line

Operation of the transmission line would not result in any adverse noise impacts. The modeled corona noise levels, including those levels modeled at the Desert Oasis Apartment Complex, are all less than 30 dBA under worst-case foul weather conditions. This noise level is just audible.

Maintenance activities associated with the transmission line might result in direct minor adverse noise impacts to the residences located at the Desert Oasis Apartment Complex during the operation of equipment. Maintenance activities would typically result in noise levels below those associated with construction-related activities and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and be of shorter duration than construction activities. Although the Town of Primm does not have any regulations governing noise, the maintenance activities would be conducted during daylight hours when residents are less likely to be disturbed. The impact would be localized at receptors along the transmission line route and would be short-term, taking less time than the original line construction.

Ivanpah Substation

Because there are no residences near the proposed Ivanpah Substation that would be affected by operation noise, there would be no adverse noise impacts associated with the operation of the substation. The nearest residences are approximately 6.7 miles from the Ivanpah Substation. The nearest noise receptors are at the Primm Valley Golf Club, a distance of more than 2.4 miles from the Ivanpah Substation. Maintenance activities associated with the Ivanpah Substation would not result in adverse noise impacts because there are no residences near the Ivanpah Substation that would be affected by substation maintenance activities.

Telecommunications Line

Operation of the telecommunication system is not anticipated to result in audible noise at any location. Maintenance of the overhead fiber optic cable and underground fiber optic cable would not result in an adverse noise impact because line splicing and replacement activities would not result in elevated noise levels.

NEPA Summary

The proposed project would result in temporary minor adverse noise impacts at residences located at the Desert Oasis Apartment Complex due to project construction. The impacts would be localized at residential receptors along the transmission line route and would be short-term, lasting up to 2.5 weeks.

The operation of the transmission line, substation, and telecommunication line would not result in adverse noise impacts. Corona noise would be barely audible and would not change current conditions. Maintenance activities associated with substations and transmission lines would typically result in noise levels below those associated with construction-related activities and are anticipated to involve fewer pieces of heavy equipment, occur less frequently, and be of shorter duration and would result in negligible adverse noise impacts.

CEQA Significance Determinations

IMPACT NOI-1: Project Construction Noise Exceeding Noise Levels or Standards
Less than significant with mitigation

Project construction would comply with local noise ordinances and variance procedures requested by local authorities. In addition, as part of the project, the applicant has committed to maintaining construction equipment in working order (APM NOI-2) and adhering to the manufacturer's maintenance recommendations (APM NOI -3); muffling construction equipment (APM NOI-4); and minimizing the amount of time that equipment is idled (APM NOI-5).

Implementation of MM NOI-1 (Conduct Construction Activities during Daytime Hours) would ensure that noise impacts at the Desert Oasis Apartment Complex would be reduced, such that impacts would be less than significant.

IMPACT NOI-2: Transmission Line Operation and Maintenance Noise Exceeding Noise Levels or Standards
Less than significant without mitigation

During the worst-case foul weather conditions, substation noise and corona noise associated with operation of the proposed project is anticipated to be just audible. This level is less than the standards of the noise ordinances of the two applicable counties. Therefore, the impacts from operation noise from the proposed project (including proposed transmission line, alternatives, substations, and telecommunication system) would result in a less than significant impact under this criterion.

Maintenance activities would typically occur over short timeframes up to twice per month and would generate minimal noise. As part of the operation of the project, the applicant would use noise reduction measures to ensure compatibility with local plans and zoning. The impacts from maintenance noise would be short-term and less than significant under this criterion.

IMPACT NOI-3: Generate Groundborne Vibration or Groundborne Noise That Exceeds 75 VdB during Construction
Less than significant without mitigation

Construction activities (e.g., ground-disturbing activities, including grading and foundation excavation, and movement of heavy construction equipment) may generate groundborne vibration and noise. Pile-driving activities typically have the greatest potential to create groundborne vibration and noise, but pile-driving is not anticipated as part of the proposed project. At the nearest residential receptor (the Desert Oasis Apartment Complex, a distance of .01 miles from the line), the vibration level generated by a loaded truck, considered to be the greatest source of construction vibration, is estimated to be 76 VdB (FTA 2006). Although this level exceeds 75 VdB, both groundborne vibration and

noise would occur during daytime hours and be short-term and temporary. Therefore, construction of the proposed project would result in a less than significant impact under this criterion.

IMPACT NOI-4: Generate Groundborne Vibration or Groundborne Noise That Exceeds 75 VdB during Operations
Less than significant without mitigation

During worst-case foul weather conditions, substation noise and the corona noise associated with operation of the proposed transmission line and alternatives is anticipated to be considerably less than existing noise levels. The minimum hourly L_{eq} measured at the nearest sensitive receptor, the Desert Oasis Apartment Complex, was 47 dBA (Table 3.10-2). Modeling results indicate that during foul weather conditions (maximum noise conditions) corona noise levels would be 24 dBA. The sum of the two, the existing and future noise levels (47 dBA + 24 dBA), would be 47 dBA given the logarithmic nature of decibel addition. Therefore, no perceptible increase would occur and operation of the proposed project would result in a less than significant impact under this criterion.

IMPACT NOI-5: Cause a Substantial Temporary Increase in Ambient Noise Levels in the Project Vicinity
Less than significant with mitigation

The FTA provides guidelines for reasonable criteria for assessment of construction noise (FTA 2006). Construction noise that exceeds a 1-hour L_{eq} of 90 dBA or an 8-hour L_{eq} of 80 dBA during the day would provoke adverse community reaction. As discussed in Section 3.10.3.3, "Methodology," construction noise would not be anticipated to exceed 78 dBA at the closest sensitive receptor, the Desert Oasis Construction Complex.

Any increases in ambient noise levels due to construction activities in the project vicinity would be short-term, intermittent, and temporary. Adverse construction noise impacts would not be anticipated (e.g., nighttime construction or pile-driving near residences). As part of the project, construction contractors would comply with local noise ordinances (APM NOI-1); maintain construction equipment in working order (APM NOI-2) and adhere to the manufacturer's maintenance recommendations (APM NOI -3); muffle construction equipment (APM NOI-4); and minimize the amount of time that equipment is idled (APM NOI-5).

In order to reduce potential noise impacts, the contractor will implement appropriate additional noise minimization measures: Relocate Stationary Construction Equipment (MM NOI-2); Turn off Idling Equipment (MM NOI-3); Notify Adjacent Residences (MM NOI-4); and Install Acoustic Barriers (MM NOI-5) to reduce noise levels. Implementation of MM NOI-1 would require the applicant to only work during daytime hours when construction is near the Desert Oasis Apartment Complex. Therefore, with the implementation of MM NOI-1, and with additional noise minimization procedures (MM NOI-2 through MM NOI-5) implemented as needed, construction of the proposed project would result in a less than significant impact under this criterion.

NO IMPACT: Public Airport Combined Noise Impact. No public airstrips are currently located within two miles of the proposed project. Therefore, this criterion is not applicable to the proposed project during construction. The Jean Sport Aviation Center is approximately five miles away from the proposed route of the transmission line.

NO IMPACT. Private Airstrips. No private airstrips are located within two miles of the proposed project (Clark County 2008). Therefore, construction of the proposed project would result in no impacts under this criterion.

3.10.3.6 No Project / No Action Alternative

Under the No Project / No Action Alternative, there would be no construction of the transmission line, substation, or communication lines; therefore, there would be no construction or operational noise impacts.

3.10.3.7 Transmission Alternative Route A

Transmission Line Alternative A is similar to the EITP proposed route with the exception of bypassing a portion of the proposed route that runs north and south near Milepost 2.0, approximately 0.83 miles in the City of Boulder. Alternative Route A was created to bypass this segment by heading west and then north to join the existing ROW. The remainder of the EITP route would be the same.

Regarding potential construction noise impacts to sensitive receptors, Transmission Line Alternative A is similar to the proposed project because there is no change to the proposed project route near these receptors. Therefore, with implementation of MM NOI-1 through MM NOI-5, this alternative would also cause a direct minor short-term adverse noise impact or a less than significant impact with mitigation to residences located at the Desert Oasis Apartment Complex during construction.

Operational noise would not result in an adverse impact and would be less than significant. Groundborne noise and vibration generated during construction and operation of this alternative would be negligible and less than significant.

3.10.3.8 Transmission Alternative Route B

Transmission Line Alternative B is similar to the proposed route with the exception of bypassing a portion of the proposed route that runs north and south near Milepost 2.0, approximately 0.83 miles in the City of Boulder. Alternative Route B was created to bypass this segment by heading north and then southwest to join the existing ROW. The remainder of the EITP route would be the same.

Regarding potential construction and operational noise and vibration impacts to sensitive receptors, Transmission Line Alternative B is similar to the proposed project because there is no change to the project route near these receptors. Therefore, potential impacts for Transmission Line Alternative B are similar to those associated with Transmission Alternative Route A.

3.10.3.9 Transmission Alternative Route C

Regarding potential construction and operational noise impacts to sensitive receptors, Transmission Line Alternative C would relocate a portion of the proposed transmission line away from the nearest sensitive receptor (Desert Oasis Apartment Complex). This relocation would likely result in a decrease in potential construction noise impacts on the Desert Oasis Apartment Complex, but such impacts would still be considered adverse and minor. Potential construction impacts associated with Transmission Line Alternative C would be minor and a less than significant impact.

Operational noise impacts would not result in an adverse noise impact and would be negligible and less than significant. Groundborne noise and vibration generated during construction and operation of this alternative would be slightly less than that generated by the proposed project and would be negligible and less than significant.

3.10.3.10 Transmission Alternative Route D and Subalternative E

Where feasible, Alternative Route D would parallel structure-for-structure the existing Los Angeles Department of Water and Power (LADWP) Marketplace–Adelanto 500-kV transmission line through the Ivanpah Dry Lake.

Alternative Route D begins at the Eldorado Substation and follows the proposed route to the point where the line reaches the northeastern edge of the Ivanpah Dry Lake (milepost [MP] 27, Tower 184). The line would be re-routed west and southwest on a new 130-foot ROW around Ivanpah Dry Lake for approximately 3.3 miles before rejoining the existing ROW at MP 30, Tower 203. The line would parallel the LADWP Marketplace–Adelanto 500-kV transmission line as it crosses through the Ivanpah Dry Lake.

Subalternative E replaces the northernmost portion of Alternative Route D. Subalternative E would deviate from the proposed project route at MP 27 and proceed southerly for approximately 1 mile on a new 130-foot ROW before intercepting the route proposed for Transmission Alternative D.

Regarding potential construction and operational noise impacts to sensitive receptors, Transmission Line Alternative D would relocate a portion of the proposed transmission line away from the nearest sensitive receptor (Desert Oasis Apartment Complex). This relocation would likely result in a decrease in potential construction noise impacts on the Desert Oasis Apartment Complex, but such impacts would still be considered adverse, minor, and less than significant.

Operational noise impacts would not result in an adverse noise impact and would be negligible and less than significant. Groundborne noise and vibration generated during construction and operation of this alternative would be slightly less than that generated by the proposed project and would be negligible and less than significant.

3.10.3.11 Telecommunication Alternative (Golf Course)

From the I-15 junction point, this route parallels I-15 in a northerly direction on existing Nipton 33-kV distribution line poles, crosses over I-15 near the Primm Golf Course, and crosses the golf course in an underground duct. After leaving the golf course, the route continues on existing Nipton 33-kV distribution line poles to a point approximately 1 mile from the Ivanpah Substation, where it would be installed in an underground duct for approximately 1 mile to enter the north side of the Ivanpah Substation. This route, from the I-15 junction point to the Ivanpah Substation, is approximately 10 miles. This alternative is located several miles from the Desert Oasis Apartment Complex and would not have any adverse noise impacts on this receptor or result in any other construction noise impacts.

Operational noise impacts would not result in any adverse noise impacts. There would be no groundborne noise or vibration impacts during construction and operation of this alternative.

3.10.3.12 Telecommunication Alternative (Mountain Pass)

This alternative extends from Nipton to the I-15 junction point and consists of a combination of All Dielectric Self-Supporting fiber cable on existing Nipton 33-kV wood pole lines and underground fiber cable. Approximately 1 mile of All Dielectric Self-Supporting fiber cable would be installed on the existing Nipton 33-kV distribution line immediately west of Nipton, on the north side of Nipton Road. An unknown number of poles may need to be replaced to meet the new loading requirement of the All Dielectric Self-Supporting fiber cable. This alternative is located several miles from the Desert Oasis Apartment Complex and would not have any adverse impacts on this receptor or result in construction noise impacts to any other noise receptors.

Operational noise impacts would not result in any adverse noise impacts. There would be no groundborne noise or vibration impacts during construction or operation of this alternative.

3.10.4 Mitigation Measures

MM NOI-1: Conduct Construction Activities during Daytime Hours. The applicant will conduct construction activities only during daytime hours (7 a.m. to 7 p.m.) while in the vicinity of the Desert Oasis Apartment Complex.

MM NOI-2: Relocate Stationary Construction Equipment. The applicant will locate stationary construction equipment at a site location that is as far away from the Desert Oasis Apartment Complex as is feasible.

MM NOI-3: Turn off Idling Equipment. The applicant will turn off idling equipment when not in use.

MM NOI-4: Notify Adjacent Residences. The applicant will notify residents within 200 feet of the transmission line in advance of construction work.

MM NOI-5: Install Acoustic Barriers. The applicant will install acoustic barriers around stationary construction noise sources near sensitive receptors.

3.10.5 Whole of the Action / Cumulative Action

~~Below is a brief summary of information related to noise in the ISEGS Final Staff Assessment/ Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared to the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

Information on noise related to the ISEGS project is summarized below. The setting for the ISEGS project is described, followed by summaries of methodologies used and the impact conclusions presented in the CEC's FSA, Addendum, and Final Decision and the BLM's FEIS. Required conditions of certification and mitigation measures are listed.

3.10.5.1 ISEGS Setting

Environmental Setting

~~ISEGS would be constructed on 4,073 acres of federally owned land administered by the BLM in San Bernardino County. The site lies approximately 4.5 miles southwest of Primm, Nevada, and 3.1 miles west of the Nevada border, in an area designated compatible with solar energy development in the California Desert Conservation Area Plan. The Primm Valley Golf Club lies approximately 0.5 miles northeast of the eastern boundary of ISEGS. Unlike the EITP, the proposed project would be located entirely within a rural area.~~

The ISEGS project would be constructed on federal land administered by the BLM in San Bernardino County, California. The total acreage requested for the ROW for the Mitigated Ivanpah 3 Alternative would be 3,564.2 acres. The site is in an area designated compatible with solar energy development in the California Desert Conservation Area Plan, approximately 4.5 miles southwest of the Town of Primm, Nevada, 3.1 miles west of the Nevada border, and 0.5 miles southwest of the Primm Valley Golf Club. Unlike the EITP, the ISEGS project would be entirely within a rural area.

Applicable Laws, Regulations, and Standards

Because ISEGS is located wholly within San Bernardino County~~—whereas~~ but the EITP spans San Bernardino and Clark ~~County—~~counties, laws, regulations, and standards in Tables 3.10-4, 3.10-4, and 3.10-5 (except those for Clark County) that apply to the EITP would also apply to ISEGS~~ with the exception of the Clark County regulations, which would apply to the EITP only~~. The CEC Final Decision notes that communities surrounding the ISEGS project site do not have provisions for regulating offsite noise, and that San Bernardino County noise ordinances were used for the analysis even though they are inapplicable since the project is on federal land.

Ambient Noise Monitoring

~~Ambient~~Although ambient noise monitoring was conducted for the EITP, it was not conducted for ISEGS~~, as it was for the EITP,~~ because the CEC ~~regulations require such monitoring~~requires it only when a project would impact facilities located where quiet is an important attribute of the environment~~ would be impacted by the project~~. The community of Primm, Nevada, ~~4.5 miles from ISEGS,~~ is too far from the project to be significantly impacted by project noise. The Primm Valley Golf Club golf course is considered a less noise-sensitive land use than are the Town of Primm residences.

3.10.5.2 ISEGS Methodology

Noise analyses for ISGES were conducted for the power plant construction and operation, construction of natural gas and water pipeline, and electrical transmission lines, pile driving, and steam blows. As for the EITP, noise levels ~~generated by these sources~~ were modeled at the nearest noise receptors and then compared with applicable regulatory noise limits.

CEC FSA Methodology

The Final Decision states that San Bernardino County noise ordinances were used for the analysis even though they are inapplicable since the project is located on federal land. It indicates that a 5-dBA increase in noise levels would be insignificant, any increase of more than 10 dBA would be "clearly significant," and increases between 5 and 10 dBA would be adverse but that significance would depend on the individual case. Significance was determined based on noise level, duration and frequency of noise, number of people affected, and land use designation of receptors. The Final Decision states that the nearest potential receptor (Town of Primm) is too far from the project to be significantly affected by project noise, so no ambient monitoring was required. Potential cumulative noise impacts would be limited to areas within 0.25 miles of the project.

BLM FEIS Methodology

The FEIS analysis considered (1) noise level standards, (2) groundborne vibration and noise levels, (3) permanent increase in ambient noise, and (4) substantial temporary or periodic increase in ambient noise. An adverse noise could exist if a 5-dBA increase above background would result at the nearest sensitive receptor. While the FSA indicates that an increase of between 5 and 10 dBA would be adverse but might or might not be significant, the FEIS indicates that range might or might not be adverse. In addition to the considerations named in the FSA (noise level, duration and frequency of noise, number of people affected, and land use designation of receptors), the FEIS names public concern or controversy as a factor to be considered. Construction noise would not be adverse if it were temporary, noisy equipment were used only in the daytime, and standard noise abatement equipment were used.

3.10.5.3 ISEGS Impacts

~~The CEC and the BLM have published the following impacts related to noise for the ISGES project:~~

CEC Impact Conclusions

The CEC Final Decision states that noise levels from steam blows (the loudest construction noise) would be attenuated to no more than 60 and 55 dBA at the golf course and at the Town of, respectively, through use of silencers or other NOISE-7 methods. Noise from construction of linear components would last no more than a few days. The Final Decision concludes that, with proposed mitigation, construction would not result in annoying noise levels at the Town of Primm or the golf course. Workers would be protected from noise injury by NOISE-3. Construction vibration is not expected to have any impact.

During operations, potential annoyance from steady-state (tonal) noise would be avoided by implementation of NOISE-4, and injury to workers would be avoided by NOISE-5. Operational vibration would be undetectable to receptors. Noise from the ISEGS project combined with noise from the FirstSolar project would not result in cumulative impact at the golf course. The Final Decision states that, overall, the project would not cause significant indirect, direct, or cumulative adverse noise impacts. The FSA conclusions are the same and include the statement that ISEGS would comply with all applicable LORS.

BLM Impact Conclusions

Construction Impacts

~~Construction of ISEGS would cause a short-term increase in ambient noise levels in the vicinity of the facility. Construction of an industrial facility such as a power plant is typically noisier than permissible under usual noise ordinances. In order to allow the construction of new facilities, construction noise during certain hours of the day is commonly exempt from enforcement by local ordinances. The San Bernardino County Development Code exempts all construction noise from numerical noise limits between 7 a.m. and 7 p.m. Monday through Saturday. If members of the public complain about construction noise, mitigation measures NOISE-1 and NOISE-2 would be implemented. This would establish a notification process to make people aware of ISEGS and a noise complaint process that would require the applicant to resolve any problems caused by noise from the ISEGS project. Mitigation measures NOISE-6 and NOISE-7 would also be implemented to limit the hours of construction to daytime hours.~~

The FEIS indicates that construction of the proposed ISEGS project would not result in noise impacts to offsite receptors. Construction duration of the Mitigated Ivanpah 3 Alternative would be 17% shorter; the boilers to be tested would be smaller, and fewer heliostats would be installed. Therefore, noise and vibration impacts from that alternative would be lower than those for the proposed project.

Operational Impacts

~~The primary noise sources of the ISEGS project would be the steam turbine generators, boiler feed pumps, transformers, auxiliary boilers, and air-cooled condenser fans. Depending on the equipment noise emissions, distance to nearest receptors, shielding, and other noise control measures, the operation of the ISEGS power plant could result in a noise impact. Mitigation measures NOISE-4 and NOISE-5 would ensure that operation of the plant would not cause noise complaints from residents of Primm, Nevada, or from the operator of the Primm Valley Golf Course or expose plant employees to occupational noise in excess of California and federal regulations.~~

As for construction, there would be no operational impacts from either the proposed ISEGS project or the Mitigated Ivanpah 3 Alternative.

Decommissioning Impacts

~~In the future, upon closure of the ISEGS project, all operational noise from the project would cease, and no further adverse noise impacts from operation of ISEGS would be possible. A potential temporary noise source would result from dismantling the structures and equipment and any site restoration work that might be performed. This noise would be similar to that caused by the original construction. Mitigation measures listed for construction noise would also be applied to project decommissioning activities.~~

Decommissioning noise would be similar to that of construction, and therefore, there would be no impacts.

3.10.5.4 ISEGS Mitigation Measures/Conditions of Certification

CEC Conditions of Certification ~~/ Mitigation Measures~~

~~The ISEGS FSA/DEIS recommends that the following Conditions of Certification be required by the CEC and the BLM to lessen impacts to noise if the project is approved:~~

~~**NOISE-1** requires that at least 15 days prior to the start of ground disturbance, the project owner will notify the operator of the Primm Valley Golf Course, by mail or other effective means, of the commencement of project construction. At the same time, the project owner will establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner will include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. The~~

telephone number will be posted at the project site during construction in a manner visible to passersby. The telephone number will be maintained until the project has been operational for at least one year.

NOISE-2 requires that throughout the construction and operation of ISEGS, the project owner will document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent will:

- Use a noise complaint resolution form or a functionally equivalent procedure acceptable to BLM's Authorized Officer and the Compliance Project Manager (CPM), to document and respond to each noise complaint
- Attempt to contact the person(s) making the noise complaint within 24 hours
- Conduct an investigation to determine the source of noise related to the complaint
- Take all feasible measures to reduce the noise at its source if the noise is project related
- Submit a report documenting the complaint and the actions taken; the report will include a complaint summary, including final results of noise reduction efforts, and, if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction

NOISE-3 requires the project owner to submit to BLM's Authorized Officer and the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program will be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.

NOISE-4 requires that the project design and implementation include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise complaints from residents of Primm, Nevada, or from the operator of the Primm Valley Golf Course. If project-related noise complaints are received from residents of Primm, the project owner will perform a noise survey to demonstrate that noise levels due to plant operation do not exceed an average of 45 dBA L_{eq} measured at the nearest residence of the community of Primm, Nevada. If project-related noise complaints are received from the operator of the Primm Valley Golf Course, the project owner will perform a noise survey to demonstrate that noise levels due to plant operation do not exceed an average of 55 dBA L_{eq} measured at the nearest boundary of the golf course. No new pure-tone components may be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

NOISE-5 requires that following each phase (Ivanpah 1, Ivanpah 2, and Ivanpah 3) of the project's first achieving a sustained output of 80% or greater of rated capacity, the project owner will conduct an occupational noise survey to identify the noise hazardous areas in the facility. The survey results will be used to determine the magnitude of employee noise exposure. The project owner will prepare reports of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

NOISE-6 requires that heavy equipment operation and noisy construction work relating to any project features be restricted to weekdays and Saturdays, 7 a.m. to 7 p.m.

No noisy construction work will be performed on Sundays or federal holidays. Haul trucks and other engine-powered equipment will be equipped with mufflers that meet all applicable regulations. Haul trucks will be operated in accordance with posted speed limits. Truck engine exhaust brake use will be limited to emergencies.

NOISE-7 requires that if a high-pressure steam blow is employed, the project owner will equip steam blow piping with a temporary silencer or take other effective measures that quiet the noise of steam blows to no greater than 60 dBA

~~measured at the Primm Valley Golf Club and no greater than 55 dBA measured at any affected residential locations in Primm, Nevada. The project owner will conduct high-pressure steam blows only during the hours of 7 a.m. to 7 p.m. If a low-pressure continuous steam blow is employed, the project owner will limit the noise of steam blows to no greater than 45 dBA measured at any affected residential location in Primm, Nevada.~~

NOISE-1 requires the project owner to give the Primm Valley Golf Course at least 15 days' advance notice that construction will be starting. It also requires establishment of a telephone number for noise complaints.

NOISE-2 requires the project owner to document, investigate, evaluate, and attempt to resolve all project-related noise complaints.

NOISE-3 requires a noise control program.

NOISE-4 requires noise mitigation measures to avoid noise complaints from the Town of Primm residents or the operator of the golf course and specifies noise surveys documenting specific levels at the Town of Primm and the golf course if complaints are received.

NOISE-5 mandates occupational noise surveys to determine employee noise exposure; it requires reports and, if necessary, mitigation to comply with regulations.

NOISE-6 limits to 7 a.m. to 7 p.m. any construction work that causes legitimate noise complaints (Final Decision); the FSA language for this condition limits to those hours all heavy equipment operation and noisy construction work, without requiring noise complaints, and specifies that noisy work not be done on Sundays.

NOISE-7 restricts noise from high-pressure steam blows to 60 dBA at the golf club and 55 dBA at residences in the Town of Primm. It also restricts high-pressure steam blows to 7 a.m. to 7 p.m. Low-pressure steam blow noise must be no more than 45 dBA at any Town of Primm residence, or (according to the Final Decision) documentation may be provided showing that noise levels from either high or low pressure steam blows will not exceed 60 dBA at the Primm Valley Golf Course (day time) or 55 dBA (day time)/45 dBA (night time) at the nearest residential location in the Town of Primm.

The CEC FSA concludes that the ISEGS can be built and operated in compliance with all applicable noise and vibration LORS, and that, with the conditions of certification, the project would not result in CEQA- or NEPA-significant direct, indirect, or cumulative adverse noise impacts on people within the affected area.

BLM Mitigation Measures

The FEIS indicates that the CEC will manage the noise conditions of certification/mitigation measures. The mitigation measures are as stated above except that:

NOISE-4 includes visitors to the Mojave National Preserve among those from whom the project must not elicit complaints. If complaints are received, the noise surveys to be performed include the preserve. The FEIS wording also requires that complaints be "legitimate."

NOISE-7 includes the Mojave National Preserve with the residences in the Town of Primm as being limited to no more than 55 dBA noise from the ISEGS project.

3.10.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for noise were based on similar significance criteria that evaluated to what extent noise generated by construction and operation of the proposed projects would impact sensitive receptors in the project areas. As stated above, noise analyses for ISEGS were conducted for construction

and operation of the power plant, construction of natural gas and water pipelines, and construction and operation of electrical transmission lines, as well as for pile driving and steam blows. For the EITP, noise levels were modeled at the nearest noise receptors and then compared with applicable regulatory noise limits.

Both the EITP and ISEGS would be constructed in largely unpopulated areas. Noise from EITP construction would be temporary, and impacts due to corona noise or noise associated with maintenance activities would be negligible. While noise and vibration would be perceived by residents of the Desert Oasis Apartment Complex during construction, this impact would be temporary and therefore less than significant. Noise and vibration for ISEGS would also be less than significant after mitigation. It is possible that if portions of the EITP located near ISEGS were constructed at the same time as the ISEGS project, then the combined construction noise would be slightly louder near the Primm Valley Golf Course; however, operational noise would be generated mainly by ISEGS, as EITP operational noise would be negligible. Therefore, the combined impact of the two projects during operation would be similar to the projects' individual impacts. Together, impacts from the two projects would be adverse but less than significant. See Section 5.3.9 for a discussion of cumulative impacts.

3.11 Public Services and Utilities

This section describes the environmental setting, regulatory setting, and potential impacts associated with the construction, operation, and maintenance of the proposed project and alternatives with respect to public services and utilities.

3.11.1 Environmental Setting

Emergency response units and facilities, schools, solid waste, wastewater, water supply facilities, and existing powerlines and pipelines in the proposed project area are described in the following sections.

3.11.1.1 Emergency Response Units and Facilities

Fire Departments

In California, the San Bernardino Fire Department, North Desert Division, services the proposed project area. Station 53 in Baker is the closest fire department to the proposed Ivanpah Substation site; the fire station is approximately 50 miles southwest of the substation (San Bernardino County 2009b). In Nevada, fire protection is provided by the Clark County Fire Department. A fire station (Station 75) is located in Searchlight, approximately 40 miles east of the proposed Ivanpah Substation site and 40 miles south of the existing Eldorado Substation. A small station (Station 87) is also located in the Town of Jean, approximately 20 miles northeast of the proposed Ivanpah Substation site (Clark County 2009b).

Police Departments

In California, the proposed project area is within the jurisdiction of the San Bernardino County Sheriff's Department. The sheriff's office nearest to the proposed Ivanpah Substation site is in Baker, approximately 50 miles southwest of the substation. The Baker sheriff's office is a small satellite office of the larger Barstow office, which is approximately 100 miles southwest of the Ivanpah Substation (San Bernardino County 2009d). The Baker sheriff's satellite office is known as a "resident post" and supports the California Highway Patrol along Interstate 15 in the Baker area (I-15; San Bernardino County 2009d; 2009e). The California Highway Patrol is the primary law enforcement agency for California highways. Its services include traffic control, accident investigation, and management of hazardous materials incidents (California Highway Patrol 2009).

In Clark County, Nevada, the Las Vegas Metropolitan Police Department services the proposed project area. The department provides law enforcement services to all of Clark County, excluding the cities of Henderson, North Las Vegas, Boulder City, and Mesquite. The Boulder City Police Department services the Boulder City Annexation, where the existing Eldorado Substation is located (Boulder City 2009). The Nevada Highway Patrol is the primary law enforcement agency for Nevada's highways (Nevada Highway Patrol 2009).

Medical Facilities

In California, the closest hospital to the proposed Ivanpah Substation site is in Barstow, more than 100 miles southwest. The Boulder City Hospital is the closest hospital to the existing Eldorado Substation in Nevada, approximately 20 miles northeast. It is the closest hospital to the proposed project area in both Nevada and California.

3.11.1.2 Schools

The proposed project area is located within the Baker Valley Unified School District (BVUSD) in California and within the Clark County School District (CCSD) in Nevada. BVUSD includes elementary, junior high, and high schools. BVUSD schools are approximately 50 miles southwest of the proposed Ivanpah Substation site (BVUSD 2009).

CCSD is a much larger district, with schools in Goodsprings, Searchlight, Henderson, and Boulder City. A correction-center high school is located in the Town of Jean (CCSD 2009).

3.11.1.3 Solid Waste and Wastewater Facilities

Solid Waste

In San Bernardino County, the closest nonhazardous solid waste landfill large enough to serve the proposed project is in Barstow, approximately 110 miles southwest of the Ivanpah Substation site. At present, the Barstow Sanitary Landfill is permitted to accept up to 750 tons of wastes per day (600 tons of solid waste and 150 tons of liquid waste; California Integrated Waste Management Board [CIWMB] 2009a). Although the current facility is nearing capacity, the recently approved Barstow Sanitary Landfill Expansion Project would expand the landfill by 284 acres (San Bernardino County 2009a, 2009c). According to the CEQA Findings and Final EIR for that project, the landfill will be increased in size according to the actual inflow rate during expansion (San Bernardino County 2009a); however, if the landfill is not expanded in time to accept wastes generated by the proposed project, the Victorville Sanitary Landfill is the next closest landfill in California. It is approximately 140 miles southwest of the proposed Ivanpah Substation. The Victorville Sanitary Landfill accepted approximately 980 tons of wastes per day in 2006 and 890 tons of wastes per day in 2007. It is permitted to accept up to 3,000 tons of wastes per day and is not nearing capacity (CIWMB 2009b).

In Clark County, the closest landfill with the capacity to serve the proposed project is Apex Regional Landfill, approximately 65 miles northeast of the existing Eldorado Substation. The landfill has no maximum daily capacity and is a Class I landfill, i.e., it is allowed to accept all types of solid non-hazardous wastes from households, businesses, and industry. The estimated closure date is more than 50 years in the future (Clark County 2006).

Wastewater

In both California and Nevada, most facilities in the proposed project area use septic systems instead of municipal wastewater systems. A wastewater treatment plant in Primm, Nevada, approximately 6 miles northeast of the proposed Ivanpah Substation site processes wastewater from the casinos, restaurants, and other properties in the Town of Primm (NDEP 2008). Wastewater disposal is regulated by the Lahontan Regional Water Quality Control Board, Region 6, in California, and by Clark County Ivanpah Pahrump Valley, Planning Area 6, in Nevada (California Environmental Protection Agency 2009, Clark County 2009a).

3.11.1.4 Water Supply

The proposed project would be located in the northeastern Mojave Desert region of San Bernardino County on federal land administered by the BLM. The Ivanpah Valley Groundwater Basin is the primary natural water supply for the area. The proposed project area would also extend across several other basins (Figure 3.8-3). Water resources in this area are extremely limited. The proposed Ivanpah Substation would be near the Primm Valley Golf Club, a 22-acre facility that requires irrigation.

The Ivanpah Valley Groundwater Basin extends from California into Nevada and is part of a larger hydrologic system that includes Jean Lake Valley and much of the proposed project area in Nevada. According to the BLM (2009), most water basins in southwest Clark County and the northeastern Mojave Desert region of San Bernardino County are over-appropriated and new water entitlements can be difficult to obtain (see also Section 3.8, "Hydrology and Water Quality"). There are no municipal water services in the proposed project area (BLM 2009).

3.11.1.5 Existing Powerlines and Pipelines

As discussed in Section 3.7, "Hazards, Health, and Safety," the proposed transmission line would be near or immediately adjacent to the Los Angeles Department of Water and Power (LADWP) powerlines for most of its length

and NV Energy powerlines for a portion of its length. Additionally, the line would cross below existing powerlines at multiple locations and be near or immediately adjacent to various pipelines that transmit gasoline, diesel, jet fuel, and natural gas (Clark County 2006). There are also at least three major gas pipelines buried underground in both California and Nevada that may be located near the transmission right-of-way (ROW). For more details on existing powerlines and pipelines in the area, see Section 3.7, "Hazards, Health, and Safety."

3.11.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of laws, regulations, and standards that govern public services and utilities in the proposed project area.

3.11.2.1 Federal

Solid Waste Disposal and Resource Conservation and Recovery Act

The Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act [RCRA] of 1976) establishes requirements for the management of solid waste. RCRA establishes provisions for the design and operation of solid waste landfills. It authorizes states to carry out many functions of the act through their own waste programs and laws. Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter I, Solid Wastes, was established to implement the provisions of these acts.

Clean Water and Water Quality Acts

The Water Pollution Control Act of 1948, amended by the Clean Water Act (CWA) and Water Quality Act, requires states to set standards to protect water quality, which includes the regulation of storm water and wastewater discharge during construction and operation of a facility.

Occupational Safety and Health Act

The Occupational Safety and Health Act (OSHA) of 1970 (29 United States Code [USC] Section 651 et seq.) mandates safety requirements in the workplace. Procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector, are established in 29 CFR 1910. Federal approval of California's and Nevada's plans for enforcement of state safety and health requirements is given in 29 CFR 1952 Subparts K and W (respectively).

3.11.2.2 State

California Public Utilities Commission General Order 131-D

Under this General Order, the construction of powerlines designed to operate at or above 200 kilovolts (kV) and substations designed to operate at or above 50 kV must be authorized by the CPUC.

California Integrated Waste Management Act

The Integrated Waste Management Act of 1989 (Public Resource Code 40050), administered by the CIWMB, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify ways to reduce the amount of solid waste sent to landfills. This law set reduction targets of 25 percent by 1995 and 50 percent by the year 2000.

Protection of Underground Infrastructure (California)

Under California Government Code Section 4216–4216.9, anyone planning to excavate must contact the appropriate regional notification center at least two working days before beginning excavation. Subsequent to this notification, underground infrastructure operators are notified and required to locate and field-mark the approximate location and

number of subsurface installations that may be affected. The excavator is then required to determine the exact location of subsurface installations that may be affected by excavating with hand tools within the area of the approximate location of subsurface installations, as determined by field-marking.

California Water Law and Permitting

California's water law (California Code of Regulations [CCR] Title 23) is based on four doctrines: riparian, prior appropriation, groundwater, and pueblo rights. Riparian rights result from the ownership of land bordering a surface water source. Appropriative rights are acquired by putting surface water to beneficial use. The pueblo doctrine recognizes Spanish or Mexican water rights.

Subterranean streams and underflow of surface waters are subject to the laws of surface waters and regulated by the State Water Resources Control Board and its regional boards. The regional boards issue permits and licenses for appropriation from surface and underground streams. In evaluating applications, relative benefits derived from the beneficial uses, possible water pollution, and water quality are considered.

California Building Standards Code and California Fire Code

CCR Title 24 comprises 11 parts containing building design and construction requirements as they relate to fire, life, and structural safety. Title 24 incorporates current editions of the International Building Code, including the electrical, mechanical, energy, and fire codes applicable to the proposed project.

Public Utilities Commission of Nevada Permitting

The Nevada Utility Environmental Protection Act of 1971 (Nevada Revised Statutes [NRS] 704.820 through 704.900) establishes that the construction of a utility facility designed to operate at 200 kV or more requires a permit from the Public Utilities Commission of Nevada. Replacement of an existing facility with a like facility, as determined by the Nevada Public Utilities Commission, however, does not constitute construction of a utility facility. Any facility that was required to be permitted must thereafter be constructed, operated, and maintained in conformity with the permit and any terms, conditions, and modifications contained therein.

Nevada Recycling Standards and Solid Waste Management Plan

Under NRS 444A.020, as amended, the State Environmental Commission is required to adopt standards with the goal of recycling at least 25 percent of total solid waste generated within each municipality. Nevada's Solid Waste Management Plan provides a description of the existing framework for solid waste management. It describes governmental roles and responsibilities, statewide trends in solid waste management, assessment of Nevada's municipal solid waste management systems, and solid waste management issues and future considerations.

Excavation or Demolition Near Subsurface Installations (Nevada)

Under NRS Sections 455.080–455.180, a person must not begin an excavation if the excavation is to be conducted in an area that is known or reasonably should be known to contain a subsurface installation unless the appropriate association for operators is notified at least two working days prior to excavation. The excavator must then work with the underground infrastructure operator to mark underground infrastructure in the proposed excavation area.

Nevada Water Law and Permitting

The Nevada Water Law (NRS Chapters 533 and 534) is based on two fundamental concepts: prior appropriation and beneficial use. Prior appropriation grants priority to water permits chronologically, ensuring that new water rights are granted only after protection of existing water rights holders are assured. Beneficial use requires that water be put to a use that benefits the people of Nevada, preventing water from being reserved for speculative purposes. Agriculture, municipal uses, commercial/industrial uses, recreational uses, and mining all qualify as beneficial uses.

Individuals or organizations seeking water rights must file an application with the Nevada Office of the State Engineer for a permit. The application must include a map prepared by a water rights surveyor that shows the points where water would be accessed and used.

3.11.2.3 Regional and Local

San Bernardino County General Plan

The following goals and policies of the San Bernardino County General Plan associated with public services and utilities are applicable to the proposed project:

Goal S 3: The County will protect its residents and visitors from injury and loss of life and protect property from fires.

Policy S 3.1: The following Peakload Water Supply System guidelines shall be met for all new development or be adequately served by water supplies for domestic use and community fire protection in accordance with standards as determined by the County Fire Department: (a) Limit or prohibit development or activities in areas lacking water and fire fighting facilities. (b) ...

Policy S 3.2: The County will endeavor to prevent wildfires and continue to provide public safety from wildfire hazards.

Goal CI 11: The County will coordinate and cooperate with governmental agencies at all levels to ensure safe, reliable, and high quality water supply for all residents and ensure prevention of surface and groundwater pollution.

Goal CI 14: The County will ensure a safe, efficient, economical, and integrated solid waste management system that considers all wastes generated within the County, including agricultural, residential, commercial, and industrial wastes, while recognizing the relationship between disposal issues and the conservation of natural resources.

Goal CI 17: The County will provide adequate law enforcement facilities to deliver services to deter crime and to meet the growing demand for services associated with increasing populations and commercial/industrial developments.

Goal D/CI 4: The County will ensure that public services are delivered and maintained at acceptable levels, even in the more rural areas of the desert.

San Bernardino County Code for Desert Groundwater Management

San Bernardino County Code Section 33.06551 requires that a permit be obtained to locate, construct, operate, or maintain a new groundwater well within the unincorporated, unadjudicated desert region of San Bernardino County. The permit is discretionary under CEQA. Groundwater management, mitigation, and monitoring may be required as a condition of the permit.

San Bernardino County Integrated Waste Management Plan

The Integrated Waste Management Plan establishes the county's goals, policies, and programs for reducing dependence on landfill solid wastes and increasing source-reduction, recycling, and reuse of products and waste in compliance with the California Integrated Waste Management Act.

Clark County Comprehensive Plan

The following goals and policies of the Clark County Comprehensive Plan associated with public services and utilities are applicable to the proposed project:

Policy SW 1-2.0: Encourage programs that reduce the amount of landfill and hazardous waste generated.

Policy CV 6-1.0: Water conservation measures should be encouraged.

Policy CV 6-1.1: Development approval should be conditioned upon the availability of water resources.

3.11.3 Impact Analysis

This section defines the methodology used to evaluate impacts for public services and utilities, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.11.4.

3.11.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects on public services and utilities would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

In addition to the CEQA impact criteria listed below, the proposed project would have a significant effect if it would:

- Result in a major reduction or interruption of existing utility systems by crossing or sharing a location with another utility.

3.11.3.2 CEQA Impact Criteria

The proposed project would have a significant impact if it would:

a. cause substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or cause a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of these public services: (1) fire protection, (2) police protection, (3) schools, (4) parks, or (5) other public facilities.

b. exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

c. require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

d. require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

e. not have sufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements;

f. result in a determination by the wastewater treatment provider that serves or may serve the project that it has demand in addition to the provider's existing commitments;

g. be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs; or

h. not comply with federal, state, and local statutes and regulations related to solid waste.

3.11.3.3 Methodology

Baseline conditions for the impact analysis were established in Section 3.11.1, "Environmental Setting," and Section 3.11.2, "Applicable Laws, Regulations, and Standards." The baseline conditions were evaluated based on their potential to be affected by construction, operation, or maintenance of the proposed project. No quantitative thresholds apply to the analysis of potential impacts on public services and utilities under CEQA or NEPA. Qualitative impact criteria are used for the analysis presented in this section.

3.11.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to public services and utilities:

APM PUSVC-1: Work Around High Pressure Pipelines. No mechanical equipment will be permitted to operate within 3 feet of the high-pressure pipelines, and work within 3 feet must be done by hand or as otherwise directed by the pipeline company.

APM PUSVC-2: Monitoring by Pipeline Companies. A representative of applicable owners and operators of major pipeline companies must observe the excavation around or near their facilities to ensure protection and to record pertinent data necessary for operations.

APM HAZ-2: Hazardous Materials and Waste Handling Management Plan. The applicant would develop programs and policies for management of hazardous materials including a Hazardous Materials and Hazardous Waste Handling Program, Construction Stormwater Pollution Prevention Plan, and procedures for Transport of Hazardous Materials, Fueling and Maintenance of Construction Equipment, Fueling and Maintenance of Helicopters, and Emergency Release Response. This plan would be valid during project construction and operation.

APM HAZ-4: Fire Management Plan. The applicant would implement a Fire Management Plan.

APM HAZ-5: SPCCP and Hazardous Materials Business Plan. The applicant would implement a Spill Prevention, Countermeasure, and Control Plan (SPCCP) for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup and a Hazardous Materials Business Plan (HMBP) that includes hazardous waste management procedures, and emergency response procedures including emergency spill cleanup supplies and equipment. This plan would be valid during project construction and operation.

APM TRA-2: Traffic Management and Control Plans. Traffic control and other management plans will be prepared where necessary to minimize project impacts on local streets and railroad operations.

APM TRA-3: Minimize Street Use. Construction activities will be designed to minimize work on, or use of, local streets.

APM W-12: Properly Dispose of Hazardous Materials. All construction and demolition waste, including trash and litter, garbage, and other solid waste, would be removed and transported to an appropriately permitted disposal facility. Petroleum products and other potentially hazardous materials would be removed and transported to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.

APM W-13: Identify Location of Underground Utilities Prior to Excavation. Prior to excavation, the applicant or its contractors would locate overhead and underground utility lines, such as natural gas, electricity, sewage,

telephone, fuel, and water lines, or other underground structures that may reasonably be expected to be encountered during excavation work.

3.11.3.5 Proposed Project / Proposed Action

Emergency Response Services

Construction, operation, and maintenance of the new and upgraded powerlines, substations, and telecommunications systems associated with the proposed project could increase demand for emergency services in the proposed project area. The proposed project could create demand for fire, police, or medical response services if any of the following or other emergency incidents occurred:

- Fire due to construction accident, improper disposal of waste, or equipment malfunction;
- Injury caused by construction activities;
- Spill of hazardous materials;
- Damage to an existing powerline or pipeline;
- Theft of materials or equipment; or
- Vandalism of equipment, structures, or property.

To limit potential impacts on emergency response services, the applicant would implement APM HAZ-4 (Fire Management Plan) during construction, which would reduce the risk of fire due to the proposed project. Additionally, the applicant would develop and implement a traffic management plan and minimize local street use during construction (APM TRA-2 and APM TRA-3), which would reduce impacts on emergency response times by limiting the project's contribution to traffic congestion in the area. Additionally, MM TRANS-1 requires the applicant to limit construction activities on Friday from noon to 10 p.m. to avoid requiring lane closures on I-15. To further reduce emergencies related to the proposed project, the applicant would be required by law to contact the appropriate Underground Service Alert organization to identify the location of underground utilities and pipelines. The applicant would also not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1) and would have a representative for the pipelines present to observe excavation activities around buried pipelines during construction (APM PUSVC-2). These requirements and APMs would help ensure that emergency response services would not be affected during project construction. To further mitigate impacts to emergency response services, MM HAZ-1 requires that the applicant prepare a Health and Safety Plan and conduct a worker safety and environmental training program. This would include the requirement that first aid kits be stored in each construction vehicle and that a worker trained in first aid be included in each work group. Further discussion of potential impacts on emergency response services and emergency response or evacuation plans is provided in Section 3.14, "Traffic and Transportation," and Section 3.7, "Hazards, Health, and Safety."

While some incidents of theft and vandalism have occurred at the applicant's unstaffed substations, implementation of the security design features proposed by the applicant would minimize potential impacts on police response services during operations. Specifically, security design features—such as 8-foot-tall security fencing, barbed wire, a motion-sensing system, and routine patrol of the substation and transmission and subtransmission lines (Chapter 2, "Description of Proposed Project and Alternatives")—would reduce the need for police services. Although fire hazards would still exist and medical emergencies and theft or vandalism could still occur, the APMs, combined with additional mitigation measures as discussed above, would be adequate to minimize emergency risks associated with the proposed project.

Schools

The proposed project would not increase the demand for housing or induce population growth during construction, operation, or maintenance. Construction workers would be expected to commute to the area or reside in the area

temporarily in the Desert Oasis Apartment Complex or one of several hotels in Primm, Nevada. Both the apartment complex and the hotels have adequate capacity for the projected number of workers, which is a maximum of approximately 200 (see Chapter 2, "Description of the Proposed Project and Alternatives," for more details). Workers would not be expected to relocate their families to the area because construction would be for only 18 months. Therefore, the proposed project would not increase demand for school services or facilities.

Solid Waste

Construction of the new and upgraded powerlines, substations, and telecommunications systems associated with the proposed project would generate solid waste and wastewater. Solid wastes would include components being replaced such as powerline towers and poles, conductor cable, and overhead ground wires; substation construction waste; and excess excavation soils and materials that could not be reused or recycled. The applicant would dispose of solid waste at an appropriately permitted disposal facility (APM W-12) and has stated that construction materials and debris would be removed from proposed project sites and recycled or properly disposed of off site (Chapter 2, "Description of Proposed Project and Alternatives"). Although the nearest landfills capable of receiving solid waste from the proposed project are located more than 100 miles from some locations along the proposed project route in California and Nevada, the landfills have the necessary capacity to receive solid waste generated by the project.

The proposed project would need to observe the Nevada Legislature's goal to recycle 25 percent of total solid waste generated within each municipality, and in California, the proposed project would be required to comply with the California Integrated Waste Management Act. During construction, the applicant has estimated that a total of 540 tons of waste would be created, of which approximately 400 tons (74 percent) would be salvaged or recycled and approximately 140 tons (26 percent) would be disposed of in landfills; therefore, the applicant should be on track to meet solid waste management requirements in both California and Nevada, and there should be adequate capacity in the area to accommodate the amount of solid waste generated. Implementation of MM PUSVC-1 (see Section 3.11.4, below) would ensure that solid waste would be recycled to the maximum extent possible.

Wastewater

Sanitary wastewater could be generated if a permanent restroom facility were built at the proposed Ivanpah Substation. Construction of a permanent restroom would entail compliance with County of San Bernardino requirements for the construction and operation of sanitary waste systems. If portable or permanent self-contained restrooms are used, the applicant has stated that holding tank sanitary wastewater would be disposed of by contract service personnel. The physical location and type of facility would be determined during final engineering for the proposed project. There would be no impact associated with an onsite septic system.

Sanitary wastewater would be generated by construction workers staying at hotels in the Town of Primm; however, the capacity of the wastewater treatment facility in the Town of Primm would not be exceeded, and therefore, there would be no impact. Other types of wastewater are discussed in Section 3.7, "Hazards, Health, and Safety." Wastewater is also discussed in Section 3.8, "Hydrology and Water Quality."

Surface Water and Groundwater

During construction of the proposed project, water would be used for dust suppression, equipment and facilities cleaning, fire prevention and control, portable restrooms, and drinking. No water would be used for powerline cleaning (insulator washing) because polymer insulators that do not require cleaning would be used. The applicant has stated that water for dust control, restrooms, and drinking would be brought to construction sites and supplied by a local vendor or agency during construction and operation of the proposed project, but the source of the water has not been identified. Due to limited water resources in the area, to ensure compliance with California and Nevada plans and permitting processes~~,~~ and reduce the impact on local water tables, a Water Use ~~Plan~~ Maximum is required ~~per~~ by MM W-2. ~~MM W-2 requires the applicant to identify quantities and sources of water to be used during each phase of the proposed project in order to identify areas where local groundwater supply and recharge could be adversely affected. MM W-2 also sets maximum water use limits for the construction and operation phases of the~~

~~proposed project.~~ Refer to Section 3.8, "Hydrology and Water Quality," for further discussion on water use and supply.

Existing Powerlines and Pipelines

The proposed Eldorado–Ivanpah Transmission Line would be near or immediately adjacent to the LADWP powerlines for most of its length and NV Energy powerlines for a portion of its length. The proposed line would cross below existing powerlines at multiple locations. Overhead lines near or immediately adjacent to the proposed Eldorado–Ivanpah Transmission Line would be identified by the applicant (APM W-13), and it is not anticipated that a power outage would occur.

The proposed Eldorado–Ivanpah Transmission Line would also be near or immediately adjacent to various pipelines that transmit gasoline, diesel, jet fuel, and natural gas (Clark County 2006). To minimize potential impacts on pipelines, the applicant would not use mechanical equipment within 3 feet of high-pressure pipelines (APM PUSVC-1). In addition, a representative from the pipelines would be present to observe excavation activities (APM PUSVC-2), and underground utility lines would be located (APM W-13) prior to construction of the proposed project. The applicant is required by law to contact the appropriate Underground Service Alert organization prior to conducting excavation activities in either California or Nevada. Pipelines and the potential for accidental release are further discussed in Section 3.7, "Hazards, Health, and Safety." With the implementation of MM PUSVC-2, there would be no impact related to interruption of existing utility systems.

NEPA Summary

Overall, impacts on emergency response services (such as fire, police, and medical services) during construction would be short term and negligible with the implementation of APM HAZ-4 (Fire Management Plan), APM TRA-2 (Traffic Management and Control Plans), APM TRA-3 (Minimize Street Use), APM PUSVC-1 (Work Around High Pressure Pipelines), APM PUSVC-2 (Monitoring by Pipeline Companies), APM W-12 (Properly Dispose of Hazardous Materials), and APM W-13 (Identify Location of Underground Utilities Prior to Excavation). Implementation of MM HAZ-1, which would require the applicant to prepare a Health and Safety Plan, would further ensure that impacts to emergency response services due to the proposed project during construction are minimized. Additionally, with the implementation of MM PUSVC-2, there would be no service interruptions for existing utilities (e.g., powerlines and pipelines).

With the implementation of MM PUSVC-1, which requires the applicant to prepare a Construction Waste Disposal Plan, impacts on solid waste management in the project area would be reduced to negligible. Additionally, with the implementation of ~~; however, even with the implementation of~~ MM W-2 (Water Use ~~Plan~~ Maximum), ~~while~~ the potential for adverse impacts on the water supply would be minimized~~, given the limited water supply in the project area, impacts on the local water table may be adverse~~.

During operations, emergency response needs are expected to be similar to existing needs in the project area, and the applicant has included a number of security design features to ensure negligible impacts on police services due to the new Ivanpah Substation.

CEQA Significance Determinations

IMPACT PUSVC-1: Emergency services needed in response to an accident or other emergency incident associated with the proposed project.
Less than significant without mitigation

Although demand for emergency services may increase temporarily during construction, existing emergency service providers and facilities would be sufficient to handle any incidents that may occur. Additionally, the applicant has proposed a variety of security features as discussed above and would implement APMs such as APM HAZ-4 (Fire Management Plan), APM TRA-2 (Traffic Management and Control Plans), APM TRA-3 (Minimize Street Use), APM

PUSVC-1 (Work Around High Pressure Pipelines), and APM PUSVC-2 (Monitoring by Pipeline Companies), which would help ensure that emergency response services would not be affected. To further mitigate impacts to emergency response services, MM HAZ-1 requires that the applicant prepare a Health and Safety Plan and conduct a worker safety and environmental training program. Therefore, potential impacts on fire, police, and medical emergency service ratios would be less than significant, and no mitigation is required. Emergency response plans are discussed further in Section 3.7, "Hazards, Health, and Safety."

IMPACT PUSVC-2: Project construction temporarily increases water use, and project operation contributes to increased long-term water consumption.
~~Potentially~~Less than significant with mitigation

As discussed in Section 3.8, "Hydrology and Water Quality," the applicant has estimated that between 30.6 and 38.3 acre feet per annum would be needed for the construction phase of the transmission line. Because there is a limited water supply in the proposed project area, the applicant would implement MM W-2, which requires a Water Use Maximum. With the implementation of MM W-2, impacts under this criterion would be less than significant. ~~preparation of a project-specific Water Use Plan, specifying the quantities and sources for all water to be used during construction, operation, and maintenance of the proposed project. The Water Use Plan would also identify the source and approximate quantity of water to be used for each activity, broken down by phase of the project, and for each source, the plan would address the potential impact on the local aquifer. In addition, MM W-2 also sets maximum water use limits for the construction and operation phases. However, because the source of the water to be used during construction is currently unknown, at this point the possibility that the impact on groundwater supplies could be significant must be considered.~~ For more information on water use and consumption, specifically as it relates to the potential for lowering the water table in the project area, see Impact HYDRO-2 in Section 3.8, "Hydrology and Water Quality."

IMPACT PUSVC-3: Solid waste generated during construction of the project exceeds landfill requirements.
Less than significant with mitigation

During construction, the applicant has estimated that a total of 540 tons of waste would be created, of which approximately 400 tons (74 percent) would be salvaged or recycled and approximately 140 tons (26 percent) would be disposed of in landfills; therefore, the applicant would be on track to meet solid waste management requirements in both California and Nevada (SCE 2010b). Existing solid waste facilities have adequate capacity to accommodate project-related solid wastes. With the implementation of MM PUSVC-1, potential impacts on landfills would be less than significant.

IMPACT PUSVC-4: Solid waste generated during construction of the project results in noncompliance with federal, state, or local statutes, regulations, or policies.
Less than significant with mitigation

With the implementation of MM PUSVC-1, which would ensure compliance with local policies regarding solid waste management, impacts under this criterion would be less than significant.

NO IMPACT. Require new or physically altered public facilities. There would be no impact on schools, parks, or other public facilities in the proposed project area because the increase in local population from the additional workforce required for the proposed project would be temporary and relatively small (see Section 3.13, "Socioeconomics, Population and Housing, and Environmental Justice"). Potential impacts on parks are further discussed in Section 3.12, "Recreation."

NO IMPACT. Wastewater exceeds requirements of the Regional Water Quality Control Board. The discharge of sanitary wastewater would not exceed the requirements of the Regional Water Quality Control Board, and there

would be no impact. Potential impacts associated with other types of wastewater are discussed in Section 3.8, "Hydrology and Water Quality," and Section 3.7, "Hazards, Health, and Safety."

NO IMPACT. Wastewater exceeds requirements of existing treatment facilities. There would be no impact associated with an onsite septic system, and the capacity of the wastewater treatment facility in the Town of Primm would not be exceeded during construction because sufficient capacity exists for wastewater generated by the construction workforce; therefore, there would be no impact under this criterion.

NO IMPACT. Require or result in the construction of new storm water drainage facilities. The substations associated with the proposed project would not require or result in the construction of new publicly owned storm water drainage facilities and therefore would have no impact. Potential impacts associated with stormwater are also discussed in Section 3.8, "Hydrology and Water Quality."

3.11.3.6 No Project / No Action Alternative

If the proposed project is not constructed, there would be no impact on emergency response units and facilities, schools, solid waste and wastewater facilities, water use, or existing utility systems.

3.11.3.7 Transmission Alternative Route A

Transmission Alternative Route A would reduce the length of the proposed Eldorado–Ivanpah Transmission Line by approximately 1 mile and require approximately 5 miles of new ROWs. As a result, impacts on public services and utilities may differ slightly but would not be substantively different from the proposed project.

3.11.3.8 Transmission Alternative Route B

Potential impacts under this alternative would be similar to those associated with the proposed project. Transmission Alternative Route B would extend the length of the proposed Eldorado–Ivanpah Transmission Line by approximately 3.5 miles and require approximately 5 miles of new ROW. As a result, impacts on public services and utilities might differ slightly but would not be substantively different from the proposed project.

3.11.3.9 Transmission Alternative Route C

Potential impacts under this alternative would be similar to those associated with the proposed project. Transmission Alternative Route C would extend the length of the proposed Eldorado–Ivanpah Transmission Line by approximately 1.5 miles and require approximately 5 miles of new ROW. As a result, impacts on public services and utilities may differ slightly but would not be substantively different from the proposed project.

3.11.3.10 Transmission Alternative Route D and Subalternative E

Potential impacts under these alternatives would be the same as those associated with the proposed project. Transmission Alternative Route D and Subalternative E would extend the length of the proposed Eldorado–Ivanpah Transmission Line by approximately 0.5 miles and require approximately 3 miles of new ROW. There would be a negligible increase in the amount of solid waste generated from excavation activities and the amount of water required for dust suppression and cleaning. Impacts on public services and utilities would not be substantively different from the proposed project.

3.11.3.11 Telecommunication Alternative (Golf Course)

Potential impacts under this alternative would be similar to those associated with the proposed project. There would be a moderate increase in the amount of water required for dust suppression, cleaning, and other activities. The

amount of solid waste from excavation activities and pole replacement would also increase. Regardless, impacts on public services and utilities would not be substantively different from the proposed project.

3.11.3.12 Telecommunication Alternative (Mountain Pass)

Potential impacts under this alternative would be similar to those associated with the proposed project. There would be a moderate increase in the amount of water required for dust suppression, cleaning, and other activities. The amount of solid waste from excavation activities and pole replacement would also increase. The amount of water required and solid waste generated would be slightly greater than under the Golf Course Telecommunication Alternative. Regardless, impacts on public services and utilities would not be substantively different from the proposed project.

3.11.4 Mitigation Measures

MM PUSVC-1: Construction Waste Disposal Plan. The applicant will prepare a Construction Waste Disposal Plan for all nonhazardous wastes generated during construction of the proposed project and submit the plan to the BLM and the CPUC for review and approval no less than 30 days prior to start of construction. The plan will contain the following, at a minimum:

- Description of all nonhazardous solid and liquid construction wastes, including:
  - Estimated amounts to be disposed of in a landfill by weight or volume and
  - Estimated amounts that can be recycled or salvage by weight or volume;
- Recycling, salvage, and waste minimization/source reduction plans;
- Management methods to be used for each type of waste, including temporary on-site storage, housekeeping and best management practices to be employed, and methods of transportation and packaging; and
- Description and list of all contracts and plans made with waste contractors, landfills, and wastewater treatment facilities.

The applicant may refer to internal salvage and waste manuals in the Construction Waste Management Plan where applicable. The plan is necessary to ensure that solid waste is recycled or salvaged to the maximum extent possible. In addition, the applicant would need to observe the Nevada Legislature's goal to recycle 25 percent of total solid waste generated within each municipality of Nevada.

MM PUSVC-2: Notification of Utility Service Interruption. If a utility service interruption is known to be unavoidable, the applicant will notify by postal mail members of the public, the jurisdiction, and the service providers who would be affected. The applicant will also publish notices in newspapers circulated in each jurisdiction that would be affected. The postal mail and newspaper notices will specify the estimated duration of each service interruption and be mailed or published no later than seven days prior to the first interruption. Copies of the notices will be provided to the BLM and CPUC no later than 30 days following notification.

3.11.5 Whole of the Action / Cumulative Action

~~Below is a brief summary of information related to public services and utilities in the ISEGS Final Staff Assessment / Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

Information on public services and utilities related to the ISEGS project is summarized below. The setting for the ISEGS project is described, followed by summaries of methodologies used and the impact conclusions presented in the CEC's FSA, Addendum, and Final Decision and the BLM's FEIS. Required conditions of certification and mitigation measures are listed. Some differences between the ISEGS and EITP are noted.

~~The ISEGS FSA/DEIS was reviewed for impacts that are directly relevant to the public services or utilities analysis presented in this EIR/EIS. Impacts, which were determined to be relevant if they related closely to the impact criteria presented in Section 3.11.3 of this EIR/EIS, were identified in the following ISEGS FSA/DEIS sections:~~

- ~~6.4 Hazardous Materials Management~~
- ~~6.8 Socioeconomics and Environmental Justice~~
- ~~6.9 Soil and Water Resources~~
- ~~6.10 Traffic and Transportation~~
- ~~6.11 Transmission Line Safety and Nuisance~~
- ~~6.13 Waste Management~~
- ~~6.14 Worker Safety and Fire Protection~~

The ISEGS documents contain information relevant to EITP public services and utilities in various sections. The ISEGS sections on hazardous materials management, transmission line safety and nuisance, and worker safety and fire protection are discussed under the EITP topic "Hazards, Health, and Safety" (Section 3.7). Traffic and transportation issues for ISEGS are summarized under the EITP topic of the same name (Section 3.14). Public services and utilities issues discussed in the ISEGS sections on socioeconomics and environmental justice, soil and water resources, and waste management are summarized below.

3.11.5.1 ISEGS Setting

The ISEGS project would be ~~located~~ less than 1 mile northwest of the proposed Ivanpah Substation in California. ~~Different types and amounts of hazardous materials would be used for the ISEGS project than the proposed EITP. These differences are discussed in Section 3.7, "Hazards, Health, and Safety," of this EIR/EIS. The ISEGS project setting for "Traffic and Transportation" is discussed in Section 3.14, "Traffic and Transportation," of this EIR/EIS. The ISEGS project settings for "Transmission Line Safety and Nuisance" and "Worker Safety and Fire Protection" are discussed in Section 3.7, "Hazards, Health, and Safety.~~

Public Services

~~Public services are discussed in Section 6.8, "Socioeconomics and Environmental Justice," of the ISEGS FSA/DEIS. The setting described in the ISEGS FSA/DEIS for public services is similar to that described in this EIR/EIS with the exception of three discrepancies, described below.~~

~~First, the ISEGS FSA/DEIS states that the nearest sheriff's office to the proposed ISEGS site is the Barstow Station. The Barstow Station is located approximately 110 miles southwest of the proposed ISEGS project and Ivanpah Substation sites. There is a closer sheriff's office in Baker, California, located approximately 50 miles southwest (see Section 3.11.1.1, "Emergency Response Units and Facilities," above).~~

~~Second, the ISEGS FSA/DEIS states that the Las Vegas Police Department provides police protection services in Clark County, Nevada, but it does not mention that the Boulder City Police Department services the Boulder City Annexation, where the existing Eldorado Substation is located.~~

~~Third, the ISEGS FSA/DEIS states that the closest hospital with an emergency room to the proposed ISEGS site is the Saint Rose Hospital in Henderson, Nevada. It does not mention that the Boulder City Hospital is closer to the existing Eldorado Substation in Nevada (approximately 20 miles northeast).~~

Public services are discussed under "Socioeconomics and Environmental Justice" in the ISEGS documents. The ISEGS FEIS describes a setting for public services similar to that described for the EITP in this EIR/EIS. The FEIS considers San Bernardino County, California, and Clark County, Nevada, as the areas that could be affected by potential population increases related to the ISEGS project.

Section 3.11.1.1 ("Emergency Response Units and Facilities") in this EIR/EIS contains some information missing from the ISEGS FEIS: (1) the FEIS states that the Barstow Station is the sheriff's office closest to the ISEGS site; the EIR/EIS names a closer sheriff's office in Baker, California [approximately 50 miles southwest of the ISEGS and Ivanpah Substation sites; the Barstow Station is approximately 110 miles southwest]; (2) the ISEGS FEIS does not include the information given in this EIR/EIS that the Boulder City Police Department services the Boulder City Annexation, where the existing Eldorado Substation is located; and (3) the ISEGS FEIS states that the closest hospital with an emergency room to the proposed ISEGS site is the Saint Rose Hospital in Henderson, Nevada. It does not mention that the Boulder City Hospital is closer to the existing Eldorado Substation in Nevada (approximately 20 miles northeast).

Water, Wastewater, and Solid Waste

~~Water and wastewater are discussed in Section 6.9, "Soil and Water Resources," of the ISEGS FSA/DEIS. The setting described in the ISEGS FSA/DEIS for water, wastewater, and public utilities is similar to that described in this EIR/EIS. The ISEGS FSA/DEIS notes, however, that there is capacity to treat additional wastewater at the Primm Wastewater Treatment Plant. The additional capacity was not considered in this EIR/EIS because it was determined that there would be no impact from wastewater that would be produced with the implementation of the EITP. For the EITP, wastewater would be generated during dust suppression activities, equipment cleaning, and other construction activities. During operations and maintenance, wastewater would be generated from equipment cleaning.~~

~~The ISEGS project would generate sanitary and process wastewater. Sanitary wastewater from sinks, showers, and toilets would be processed on site by a septic and leach field system that would be located near the administration building. Process water from plant floor drains, hub drains, sumps, and piping would be sent through an oil-water separator and then stored for later treatment and use in the steam boiler. All process water would be recycled or transported to a sanitary wastewater treatment facility for disposal (BrightSource Energy Partners 2007). Hazardous wastewater is discussed in Section 3.7, "Hazards, Health, and Safety," and Section 3.8, "Hydrology and Water Quality."~~

~~Solid waste is discussed in Section 6.13, "Waste Management," of the ISEGS FSA/DEIS. The ISEGS project would generate approximately 280 tons of non-hazardous solid wastes during construction. Non-hazardous wastes would include scrap wood, concrete, steel/metal, paper, glass, scrap metals, and plastic waste (BrightSource Energy Partners 2007). Hazardous wastes are discussed in Section 3.7, "Hazards, Health, and Safety." Non-hazardous solid wastes that would be generated in the EITP would include old powerline poles and towers, old conductor cable, old overhead ground wires, substation construction waste, and excess excavation soils and materials that could not be reused or recycled.~~

Water and wastewater are discussed in the soil and water section of the ISEGS FEIS, and the setting described is similar to that described in this EIR/EIS. The CEC Final Decision's soil and water section state that water and vegetation limitations in the region result in a high need to manage water use and protect against soil erosion. Stormwater flow across the project site is generally toward the east across an alluvial fan. A total of 1,726 ephemeral washes were mapped in the project area. No other wetlands or waters were identified at the site.

The ISEGS FEIS mentions the Primm Wastewater Treatment Plant, 6 miles northeast of the project site, in Nevada. The treatment plant was not noted in this EIR/EIS because wastewater produced from the EITP would not result in impacts.

The ISEGS waste management sections contain information relevant to solid waste. The ESA for the project area showed no recognized environmental conditions (RECs). Waste disposal facilities that could take the ISEGS nonhazardous construction and operation wastes are listed in the Final Decision as the Sloan Transfer Facility in Sloan, Nevada; the Apex Regional Landfill in Las Vegas, Nevada; and Barstow Sanitary Landfill in Barstow, California. The Final Decision states that these facilities have demonstrated capacity to handle the ISEGS project wastes.

Applicable Laws, Regulations, and Standards

~~The ISEGS project would be subject to all of the federal and California laws, regulations, and standards described in Section 3.11.2 above but not the state or county laws, regulations, and standards for Nevada. With regard to public services, the ISEGS FSA/DEIS also lists California Education Code section 17620 and California Government Code Sections 65996–65997, but this EIR/EIS concludes that the EITP would have no impact on schools. Therefore, these two additional codes are not expected to be relevant to the EITP.~~

~~The ISEGS FSA/DEIS does not list the California Water Law (California Code of Regulations Title 23), but it does list the California Water Code. The code sets out requirements for the regional water quality control boards, including rules for the Lahontan Region. It also establishes requirements for wastewater discharge. These issues are addressed in Section 3.8, "Hydrology and Water Quality," of this EIS/EIR. The California Water Law is important to both the ISEGS project and the EITP because it governs the permitting process for groundwater and surface water access and use.~~

~~The Protection of Underground Infrastructure requirement under California Government Code Section 4216–4216.9 is not listed in the ISEGS FSA/DEIS. It is important to note because it requires that anyone planning to excavate must contact the appropriate regional notification center at least two working days prior to beginning excavation. This process helps ensure that existing underground utilities are not damaged during construction of a project.~~

The ISEGS project would be subject to all of the federal and California laws, regulations, and standards described in Section 3.11.2 above but not to regulations specific to Nevada. The ISEGS FEIS lists California Education Code section 17620 and California Government Code Sections 65996–65997, but the EITP would have no impact on schools and thus this EIR/EIS does not list those regulations. The ISEGS FEIS lists the California Water Law (California Code of Regulations Title 23), specifically Division 3, Chapters 30 and 15, regarding electronic submission of analytical results and discharges to land, respectively. The FEIS also lists the California Water Code. These issues are addressed in Section 3.8, "Hydrology and Water Quality," of this EIR/EIS. The ISEGS FEIS does not list the California Government Code, which requires appropriate notification before beginning excavation so that existing underground utilities are not damaged during construction (Section 4216–4216.9), but the EIR/EIS does.

3.11.5.2 ISEGS Methodology

CEC FSA Methodology

In its socioeconomics and environmental justice section, the CEC's Final Decision lists the effects discussed in NEPA and CEQA guidelines for determining whether the project would have a significant effect on socioeconomics (inducing population growth, displacing people, changing revenue, overtaxing services). The worst-case scenario (all three construction phases combined) was evaluated for San Bernardino County, California, and Clark County, Nevada. A 6-mile radius of the project site was used to determine whether environmental justice populations were present. The Final Decision states that an environmental justice screening analysis was not required because densities of minority and low-income populations were beneath the 50% threshold level.

The Final Decision lists the following considerations for evaluating significance of impacts to soil and water resources: alteration of drainage, increase in runoff, impedance of flood flows, violation of water quality or waste discharge requirements, depletion of groundwater, and degradation of water quality.

BLM FEIS Methodology

~~Baseline conditions were established in the ISEGS FSA/DEIS with results similar to those in the EITP EIR/EIS. The setting, however, was discussed under different section names. For example, public services were discussed in the "Socioeconomics and Environmental Justice" section of the ISEGS FSA/DEIS. The approach used to confirm information presented in the Application for Certification for the Ivanpah Solar Electric Generating System (BrightSource Energy Partners 2007) was similar to the approach taken to confirm information presented in the Proponent's Environmental Assessment (SCE 2009). In addition, the EITP was incorporated into the analysis presented in the ISEGS FSA/DEIS.~~

~~Three areas that differ between the ISEGS FSA/DEIS and the EITP EIR/EIS for public services and utilities are noted below. First, in addition to the construction, operation, and maintenance phases, the ISEGS FSA/DEIS considers decommissioning. The Public Services and Utilities section of this EIR/EIS does not consider decommissioning.~~

~~Second, the ISEGS FSA/DEIS and EITP EIR/EIS differ on the use of mitigation to ensure compliance with applicable laws. The ISEGS FSA/DEIS states, "Absent any unusual circumstances, staff considers project compliance with LORS [laws, ordinances, regulations, and standards] to be sufficient to ensure that no significant impacts would occur as a result of project waste management" (CEC and BLM 2009, p. 6.13-7). For this EITP EIR/EIS, laws are considered to be required and, therefore, compliance with applicable laws is not included as mitigation.~~

Baseline conditions were established in the ISEGS FEIS with results similar to those described in the EITP EIR/EIS, but topics were discussed under different section names. For example, public services were discussed in the socioeconomics and environmental justice section of the ISEGS FEIS. The approach used to confirm information presented in the AFC for the ISEGS was similar to the approach taken to confirm information presented in the PEA for EITP. In addition, the EITP was incorporated into the analysis presented in the ISEGS FEIS. Only the ISEGS FEIS considers decommissioning; the EITP EIR/EIS does not.

For socioeconomic impacts, the FEIS used a methodology similar to that used in the CEC documents, described above. For soil resources, the FEIS notes that existing regulations, as well as BMPs and DESCPs, address most potential impacts for most projects, but that monitoring of flash flood damage and sedimentation and erosion rates would be required because modeling assumptions for these conditions could be incorrect due to the unprecedented size of the project for this type of location. For water resources, the FEIS states that the BLM evaluated the same potential effects mentioned above under CEC methodology.

3.11.5.3 ISEGS Impacts

~~BLM and CEC staff determined that construction and operation of the ISEGS project could impact public services and utilities. Where impacts were identified, the BLM and CEC incorporated mitigation measures to reduce potential impacts on public services and utilities to less than significant levels.~~

~~Hazardous Materials~~

~~The ISEGS FSA/DEIS concludes that, with mitigation, hazardous materials associated with the ISEGS project would not present a significant CEQA or NEPA impact on the public or environment. With implementation of a Hazardous Materials Business Plan (HAZ-2), Safety Management Plan (HAZ-3), Construction Site Security Plan (HAZ-4), and Operation Security Plan (HAZ-5), potential impacts associated with hazardous materials on public services in the~~

ISEGS project area would be reduced to less than significant levels. Hazardous materials are further discussed in Section 3.7, "Hazards, Health, and Safety," of this EIR/EIS.

Public Services

The ISEGS FSA/DEIS concludes that no significant adverse impacts on public services would occur as a result of construction or operation of the ISEGS project. No mitigation measures associated with public services or socioeconomic issues were included in the ISEGS FSA/DEIS. Socioeconomic issues related to public services are further discussed in Section 3.13, "Socioeconomics, Population and Housing, and Environmental Justice," of this EIR/EIS.

Water Resources

The ISEGS FSA/DEIS concludes that, with mitigation, water resources would not be significantly impacted under CEQA or NEPA. Ensuring that regulations related to groundwater wells (SOIL&WATER-3), the San Bernardino County's Desert Groundwater Management Ordinance (SOIL&WATER-6), regulations on collection and recycling of process wastewater (SOIL&WATER-7), and regulations on septic systems (SOIL&WATER-8) are followed and limiting construction water use to 100 acre feet per year (SOIL&WATER-4) would reduce potential impacts on water resources to less than significant levels. Soil resources are discussed in Section 3.6, "Geology, Soils, Minerals, and Paleontology," of this EIR/EIS. Water resources are further discussed in Section 3.8, "Hydrology and Water Quality."

Traffic and Transportation

The ISEGS FSA/DEIS concludes that, with mitigation, traffic and transportation resources would not be significantly impacted under CEQA or NEPA. A number of mitigation measures were incorporated into the ISEGS FSA/DEIS to reduce the ISEGS project's contribution to congestion on I-15 near recreation resources, ensure damaged roadways are repaired, and ensure glare does not impair the vision of motorists or pilots. The analysis of potential traffic and transportation impacts in the ISEGS FSA/DEIS is further discussed in Section 3.14, "Traffic and Transportation," of this EIR/EIS.

Transmission Line Safety

The ISEGS FSA/DEIS concludes that, with mitigation, issues related to transmission line safety would not result in significant impacts under CEQA or NEPA. The potential for nuisance shocks would be minimized through grounding and other field-reducing measures that would be implemented in keeping with standard industry practices and with implementation of the mitigation measures documented in the ISEGS FSA/DEIS. These field-reducing measures would maintain the generated fields within levels not associated with radio-frequency interference or audible noise. The analysis of transmission line safety presented in the ISEGS FSA/DEIS is further discussed in Section 3.7, "Hazards, Health, and Safety," of this EIR/EIS.

Waste Management

The ISEGS FSA/DEIS concludes that, with mitigation, issues related to waste management would not result in significant impacts under CEQA or NEPA. A number of mitigation measures were incorporated into the ISEGS FSA/DEIS to ensure that the ISEGS project would comply with applicable waste management laws, ordinances, regulations, and standards. The analysis of waste management presented in the ISEGS FSA/DEIS is further discussed in Section 3.7, "Hazards, Health, and Safety," and Section 3.8, "Hydrology and Water Quality," of this EIR/EIS.

Worker Safety and Fire Protection

The ISEGS FSA/DEIS concludes that, with mitigation, issues related to worker safety and fire protection would not result in significant impacts under CEQA or NEPA. Mitigation measures were incorporated into the ISEGS FSA/DEIS to ensure adequate levels of industrial safety and compliance with applicable laws, ordinances, regulations, and

~~standards. With implementation of the mitigation measures, a Construction Safety and Health Program and Operations and Maintenance Safety and Health Program would be developed and implemented (WORKER SAFETY-1 and WORKER SAFETY-2), a Construction Safety Supervisor would be provided (WORKER SAFETY-3), and a portable automatic external defibrillator would be kept on site during construction of the ISEGS project (WORKER SAFETY-5). Worker safety and fire protection is further discussed in Section 3.7, "Hazards, Health, and Safety," of this EIR/EIS.~~

CEC Impact Conclusions

The CEC's Final Decision states (in its socioeconomics and environmental justice section) that impacts on population and on housing and related services would be negligible, and thus that the project would not result in significant adverse impacts on schools or other public resources. Overall, construction and operation of the ISEGS project would not result in any direct, indirect, or cumulative significant adverse socioeconomic impacts, and implementation of all conditions of certification would ensure compliance with all relevant LORS. The document noted employment and revenue benefits from the project and agreed with the applicant's statement that the project would not result in any disproportionate impacts to environmental justice populations.

In the soil and water discussion, the Final Decision indicated that expected water recharge would exceed the pumping by existing and future projects. BMPs, the SWPPP, and the Drainage, Erosion, and Sedimentation Control Plan (DESCP) required by conditions of certification would avoid significant erosion and sedimentation, maintain water quality, protect air quality, control stormwater, and minimize impacts to groundwater to less than significant. The ISEGS project, with conditions of certification, would comply with all applicable LORS; overall, it would not result in any unmitigated, significant project-specific or cumulative adverse impacts to soil or water resources.

The Final Decision (waste management section) states that the amount of waste generated during construction would be minor with implementation of source reduction and recycling. Operations would generate 240 tons per year of nonhazardous solid wastes. Disposal of project wastes would not result in any significant direct, indirect, or cumulative impacts on existing waste disposal facilities.

~~3.11.5.4 Conditions of Certification / Mitigation Measures~~

~~The ISEGS FSA/DEIS recommends that the following Conditions of Certification be required by the CEC and the BLM to lessen impacts to public services and utilities if the project is approved:~~

~~**HAZ-2** requires the applicant to develop and implement a Hazardous Materials Business Plan to notify local emergency response services of the amounts and locations of hazardous materials associated with the ISEGS project.~~

~~**HAZ-3** requires the applicant to develop and implement a Safety Management Plan for the delivery of liquid hazardous materials.~~

~~**HAZ-4** requires the applicant to develop and implement a site-specific Construction Site Security Plan applicable to all construction phases.~~

~~**HAZ-5** requires the applicant to develop and implement a site-specific Operation Security Plan.~~

~~**SOIL&WATER-3** requires the applicant to ensure compliance with state and local laws, ordinances, regulations, and standards during construction of the onsite groundwater wells.~~

BLM Impact Conclusions

Construction Impacts

The FEIS socioeconomics section states that no direct impacts would occur to population levels, employment, housing, police service levels, or hospital facilities. For soil and water, the FEIS concludes that soil loss during and after construction would be mitigated by SOIL&WATER-1 and -2. SOIL&WATER-3 would ensure compliance with regulations. With BMPs and compliance with regulations, there would be no direct, adverse impact from construction-generated wastewater. The Mitigated Ivanpah 3 Alternative would result in substantially less soil erosion from grading (with acreage requiring grading reduced by 88%) than would the proposed project, and active drainage pathways acreage would also be reduced, by approximately 9%. Water usage and potential groundwater use conflicts would be reduced by this alternative. The wells would be farther from the golf course wells and thus would be less likely to affect them, but overall the alternative would not change potential water use impacts.

For waste management, disposal of solid wastes generated during ISEGS construction would not adversely affect the capacity of the three potential disposal facilities.

Operational Impacts

The FEIS states that no impacts to existing population levels, or adverse impacts to the study area population or employment base, would result from the proposed project operation. Tax revenues and employment impacts would be beneficial. Because there would be no population increase, there would be no increased demand for public services such as police protection, schools, and hospitals. The school impact fee required for the ISEGS project because of the administration/storage building would be beneficial to schools. The Mitigated Ivanpah 3 Alternative would reduce the tax benefits by approximately 17%.

In the soil and water section, the FEIS states that the BLM's analysis confirms the applicant's determination that there would be no net sediment loss or gain. Effects of erosion and stormwater flow would be mitigated through SOIL&WATER-1, -2, and -5. There would be no impacts to current groundwater users, and current and future pumping in the basin would not result in overdrafting of the groundwater basin such that the beneficial uses would be impacted. The quality of the water would likely be only minimally impacted, and use of groundwater would comply with applicable laws and regulations. There would be no direct, adverse impact to any other beneficial use or users of the groundwater. The Mitigated Ivanpah 3 Alternative would have reduced potential for impacts related to stormwater because the area with the largest potential for those impacts would be eliminated. Water used for heliostat washing would be reduced by 19%.

The waste management section of the FEIS indicates that the 240 tons per year of non-hazardous solid wastes expected from ISEGS project operation would be recycled or sent to a disposal facility.

Decommissioning Impacts

The socioeconomics section of the FEIS states that impacts from decommissioning would be similar to impacts from construction. The project closure would require many of the same resource protection plans as required for construction; thus, no direct, adverse impacts to soil and water resources would be anticipated. Waste management would comply with regulations and mitigation measures, so it would not result in any impacts.

3.11.5.4 ISEGS Mitigation Measures/Conditions of Certification

CEC Conditions of Certification

Conditions of certification relevant to sections discussed above are summarized below. See "Hazards, Health, and Safety (Section 3.7) and "Traffic and Transportation" (Section 3.14) for other conditions of certification relevant to public services and utilities.

SOCIO-1 requires the projects owner to pay a school development fee of at least $3,195.

SOIL&WATER 1 requires an approved DESCP and specifies details.

SOIL&WATER 2 requires compliance with discharge requirements and requires an approved SWPPP.

SOIL&WATER-3 requires construction and operation of up to two onsite groundwater wells and specifies compliance with related regulations.

SOIL&WATER-4 requires the applicant to limit ~~construction~~ groundwater use to ~~100~~ 200 acre~~-~~feet per year (AFY) during construction and 100 AFY during operations.

SOIL&WATER-5 requires heliostats to be designed and installed to withstand stormwater scour and specifies testing, analysis, modeling, and reporting. It also requires a Stormwater Damage Monitoring and Response Plan.

SOIL&WATER-6 requires ~~the applicant to comply~~a Groundwater Level Monitoring and Reporting Plan consistent with the San Bernardino County Desert Groundwater Management Ordinance. ~~This includes developing a groundwater level monitoring and reporting plan and integrating with the Primm Valley Gold Course's existing groundwater monitoring and reporting program.~~

SOIL&WATER-7 requires the applicant to ensure ~~that the~~ collection and recycling of process wastewater ~~would be managed~~ in compliance with applicable ~~laws, ordinances, regulations, and standards.~~LORS.

SOIL&WATER-8 requires the applicant to comply with County of San Bernardino and other requirements for the construction and operation of sanitary waste septic systems.

~~**TLSN-3** requires that ROW of the proposed transmission line be kept free of combustible material as required under the provisions of Section 4292 of the Public Resources Code and Section 1250 of Title 14 of the California Code of Regulations.~~

WASTE-1, 2, 4, and 7 pertain specifically to hazardous wastes, discussed in Section 3.7, "Hazards, Health, and Safety."

~~**TLSN-4** requires that all permanent metallic objects within the ROW of lines related to the ISEGS project be grounded according to industry standards regardless of ownership.~~

~~**TRANS-1** requires the applicant to develop and implement a Traffic Control Plan for construction and operation traffic.~~

~~**TRANS-2** requires the applicant to restore all public roads, easements, and ROW damage during construction of the ISEGS project.~~

WASTE-3 requires the applicant to develop and implement a Construction Waste Management Plan for all construction wastes.

WASTE-5 requires the project owner to notify the CPM and Authorized Officer of any impending waste management-related enforcement action.

WASTE-6 requires the applicant to develop and implement an Operation Waste Management Plan for all wastes generated during operation of the ISEGS project.

~~**WORKER SAFETY-1** requires the applicant to develop and implement a Project Construction Safety and Health Program.~~

~~**WORKER SAFETY-2** requires the applicant to develop and implement a Project Operations and Maintenance Safety and Health Program.~~

~~**WORKER SAFETY-3** requires the applicant to provide a site Construction Safety Supervisor.~~

~~**WORKER SAFETY-5** requires the applicant to keep a portable automatic external defibrillator on site during construction of the ISEGS project.~~

BLM Mitigation Measures

The BLM mitigation measures related to public services and utilities are the same as the conditions of certification listed above and included by reference to other sections, except that no mitigation measures were identified for socioeconomic resources, as the FEIS states that no direct, adverse socioeconomics impacts would occur as a result of the proposed ISEGS.

3.11.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for public services and utilities were based on similar significance criteria that evaluated to what extent the proposed projects would impact acceptable levels of service for fire protection, law enforcement, schools, and hospitals; result in the construction of new or expanded storm water drainage facilities; require new or expanded water entitlements; be served by landfills with sufficient capacity; or comply with statutes and regulations related to solid waste.

Impacts were evaluated according to each of these criteria in the Public Services and Utilities and Hydrology and Water Quality sections of the EITP EIR/EIS and in multiple sections of the ISEGS FSA/EIS, including: Section 6.8, "Socioeconomics and Environmental Justice," Section 6.9, "Soil and Water Resources," Section 6.13, "Waste Management," and Section 6.14, "Worker Safety and Fire Protection." The analyses for both projects also evaluated wastewater treatment impacts, but the ISEGS FSA/EIS did not list a specific impact criteria to address wastewater impacts. The ISEGS FSA/EIS did not evaluated to what extent the proposed project would result in a reduction or interruption of existing utility systems by crossing or sharing a location with another utility, but no impact with regard to utility service outages is anticipated during construction or operation of the ISEGS project.

The EITP would not increase the demand for housing or induce population growth during construction, operation, or maintenance. Construction workers would be expected to commute to the area or reside in the area temporarily. During construction, approximately 540 tons of waste would be generated, of which approximately 74 percent would be recycled and 26 percent disposed of in landfills. Sanitary wastewater could be generated if a permanent restroom facility were built at the proposed Ivanpah Substation. The wastewater generated during construction would be allowed to percolate/evaporate onsite. Maximum water use would be 40,000 gallons per day during construction (between 30.6 and 38.3 acre feet per year). The water would be supplied by existing wells at the Molycorp Mine

Mountain Pass facility. Water would not be used during operations. The proposed project route would cross below existing powerlines at multiple locations and near several pipelines.

For the ISEGS project, the required construction and operational labor force would reside within the study area and no population increase would occur during construction or operation. Approximately 280 tons of solid waste would be generated during construction and 240 tons per year during operations. A septic system for sanitary wastewater would be located at the administration building/operations and maintenance area. Process wastewater from all equipment during operations, including the boilers and water treatment equipment, would be treated and recycled. Reject streams from water treatment would be trucked off site for treatment or disposal at a waste facility as appropriate. All water for construction and operations would be drawn from one of two wells constructed for the project. Up to 194,000 gallons of water would be used daily for dust suppression, vehicle washing, and worker use during Phase 3 of the project and 99,333 during Phases 1 and 2. Approximately 76.4 acre feet of water per year would be used during operations.

The CPUC concluded that EITP impacts on the demand for public services would be less than significant and that there would be no impact on wastewater treatment plants or storm water drainage facilities (Section 3.11.3.5, "Proposed Project / Proposed Action," "CEQA Significance Determinations"). To limit potential impacts on emergency response services, the applicant would implement a Fire Management Plan (APM HAZ-4), implement a Traffic Management Plan (APM TRA-2), minimize local street use during construction (APM TRA-3), and implement a Health and Safety Plan (MM HAZ-1). Mitigation measures that require a Construction Waste Disposal Plan (MM PUSVC-1) and a water use maximum (MM W-2) would reduce impacts on landfills and water resources to less than significant levels. Pipelines near the proposed project route and locations where powerlines would be crossed would be identified by the applicant (APM W-13), and the applicant's APMs would help ensure that service interruptions do not occur (APM PUSVC-1 and PUSVC-2). If interruptions are expected to occur, the applicant would notify the public (MM PUSVC-2).

The CEC concluded that the ISEGS project would have no impact on police or school services. With conditions of certification including project construction and operations safety and health programs, a fire prevention plan, weed control measures, and the availability of an onsite defibrillator, impacts on fire and medical emergency response services would be less than significant. Construction and operations waste management plans will be developed as conditions of certification to ensure waste is recycled and reduce impacts from the disposal of solid waste to less than significant levels. The CEC concluded that BMPs, the SWPPP, and the Drainage, Erosion, and Sedimentation Control Plan required as conditions of certification would reduce erosion and sedimentation, help maintain water quality, control storm water, and minimize impacts on groundwater. Conditions of certification regarding the location of groundwater wells, maximum water use, groundwater monitoring, and water reuse would reduce impacts on water resources to less than significant levels (Section 3.11.5.3, "ISEGS Impacts," "CEC Impact Conclusions").

The BLM concluded that impacts on emergency response services (such as fire, police, and medical services) during construction and operation of the EITP would be short term and negligible with the APMs noted above. Impacts from the disposal of solid waste, the generation of wastewater, and water use would be negligible with mitigation (Section 3.11.3.5, "Proposed Project / Proposed Action," "NEPA Summary"). Similarly, the BLM concluded that with mitigation, the ISEGS project would not adversely affect emergency response services, and impacts from the disposal of solid waste, the generation of wastewater, and water use would be negligible during construction, operations, and decommissioning (Section 3.11.5.3, "ISEGS Impacts," "BLM Impact Conclusions").

Together, impacts from the two projects would have combined impacts on fire protection services and from the disposal of solid waste and from water use. Both projects will take measures to reduce impacts on fire protection services that would reduce their combined impact to less than significant or negligible levels. Both projects will also be required to recycle. For solid waste that cannot be recycled, the local and regional landfills have more than enough capacity to accept the amount of waste estimated to require disposal from the two projects. Although the combined impact from water use for the two projects has the potential to be adverse, MM PUSVC-C-1, in addition to

the measures listed in the preceding paragraphs, would further reduce impacts from water use during construction of the EITP. MM PUSVC-C-1 requires the applicant to demonstrate to the BLM and CPUC that the water supplier has an adequate supply such that the existing local public and private water usages are not altered. See also Section 5.3.10.4, "Cumulative Impact Analysis," for a discussion of cumulative impacts associated with public services and utilities.

3.12 Recreation

This section describes the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to recreation.

3.12.1 Environmental Setting

The environmental setting section describes the existing baseline wilderness and recreational conditions in the project area. The project area contains a number of natural resources conducive to wilderness status and recreational opportunities or experiences. Recreational opportunities can be defined as "favorable circumstances enabling visitors' engagement in a leisure activity to realize immediate psychological experiences and attain more lasting, value-added beneficial outcomes" (BLM 2005). Recreational experiences can be defined as "psychological outcomes realized either by recreation-tourism participants as a direct result of their on-site leisure engagements and recreation-tourism activity participation or by non-participating community residents as a result of their interaction with visitors and guests within their community and/or interaction with public and private recreation-tourism providers and their actions" (BLM 2005). Visual resources are frequently a key element of recreational experiences. The existing visual setting and potential impacts on visual resources in wilderness areas or on recreational opportunities in the proposed project area are discussed in detail in Chapter 3.2, "Aesthetics and Visual Resources."

The EITP is located within the Eldorado and Ivanpah valleys in southern Clark County, Nevada, and the Ivanpah Valley in southeastern California. The proposed project would traverse areas within both California and Nevada and cross public and privately owned lands. All of the lands that would be crossed by the proposed transmission line route in California are administered by the BLM. Small segments of the Nipton 33-kilovolt (kV) line cross private parcels at Nipton, California, near the Ivanpah Road crossing, and in the vicinity of the Mountain Pass Substation. In Nevada, the line is predominantly situated on BLM lands, but private lands would be crossed near the Eldorado Substation and, depending on the alternative selected, possibly at Primm, Nevada.

Land uses within the area range from open space and conservation/preserve areas to commercial, public, and private recreation; utility/energy uses; industrial and mining uses; transportation; and limited residential uses. Lands in the project area with special designations that include recreational use are the Mojave National Preserve, wilderness areas, and Areas of Critical Environmental Concern (ACECs). Other areas used for recreation including Eldorado, Ivanpah, Roach, and Jean dry lake beds are present in the valleys. The Clark Mountains are on the far western edge of the proposed project location, and the foot of the Spring Mountains is to the north of the existing transmission line just above Primm, Nevada. At the east edge of the Ivanpah Valley in Nevada, the transmission line passes between Sheep Mountain to the north and the north end of the Lucy Gray Mountains and then passes through the northern McCullough Mountains. The telecommunication line alternatives pass to the west of the Highland Ranges and, farther south, pass between the McCullough and New York mountains.

Private developed land is located along the California/Nevada border in and near Primm, Nevada, and includes casinos and hotels, restaurants, a nine-hole golf course, and other tourist attractions. Recreational uses include casual and organized noncompetitive and competitive land-sailing on both the west and east sides of the Ivanpah Dry Lake bed and casual and organized non-competitive vehicle use on designated routes surrounding the dry lake bed.

3.12.1.1 Regional Setting

The EITP is in an area offering a diverse range of recreational opportunities, including widely dispersed public recreational areas that allow visitors to pursue activities in non-specific settings. The opportunities include caving, photography, painting, automobile touring, backpacking, bird watching, hunting, primitive camping, hiking, rock climbing, and off-highway vehicle (OHV) use. Table 3.12-1 lists recreation opportunity areas within 0.5 miles of the EITP.

Table 3.12-1 Recreation Opportunity Within 0.5 miles of the EITP

Recreation Opportunity Area	Alternative/Route	Distance from Project (miles)	Nearest MP
BLM Lands	Alternative A	Less than or equal to 0.5	4.5–5.0
	Alternative C	Less than or equal to 0.5	0.0–5.0
	Alternative D	Less than or equal to 0.5	0.0–3.0
	Proposed Project	Less than or equal to 0.5	6.5–35.0
	Subalternative E	Less than or equal to 0.5	0.0–1.0
Boulder City Annexation	Alternative A	Less than or equal to 0.5	0.0–5.0
	Alternative B	Less than or equal to 0.5	0.0–6.0
	Proposed Project	Less than or equal to 0.5	0.0–7.5
Ivanpah Dry Lake	Alternative C	Less than or equal to 0.5	1.5–5.0
	Alternative D	Less than or equal to 0.5	2.0–3.0
	Proposed Project	Equal to 0.5	28.0–31.5
Primm Valley Golf Club	Proposed Project	0.5	27.0–28.0
Roach Dry Lake	Alternative C	Less than or equal to 0.5	0.0–1.0
	Alternative E	0.5	0.0
	Proposed Project	Less than or equal to 0.5	21.5–27.5

Key: See Figure 1-1.
MP = milepost

Public Lands – Bureau of Land Management

Most of the land crossed by the project is managed by BLM field offices in Needles, California, and Las Vegas, Nevada. Lands under the jurisdiction of the Needles Field Office are managed according to the goals, policies, and designations contained in BLM's 1980 California Desert Conservation Area (CDCA) Plan, as amended. Lands under the jurisdiction of the Las Vegas Field Office are managed according to the goals, policies, and designations contained in BLM's 1998 Las Vegas Resource Management Plan (RMP).

Virtually all recreational activities on BLM lands depend on availability of access to recreational areas. Most visitors travel on previously used or designated motorized vehicle routes. BLM management of recreational activities, facilities, and visitor participation focuses on organized OHV events, permitted commercial and organized activities (bighorn sheep hunts, trail rides, vision quests), visiting specific local wildlife conservation sites (BLM 2002), and land-sailing and other wind-powered sports. Other recreational uses in the area include hunting, recreational shooting, and rock hounding. Occasionally, organized, permitted, motorized or non-motorized touring activities are authorized in the area (BLM 2002).

The CDCA Plan includes a Recreation Element that outlines approved recreational uses and designates specific recreational areas. Recreational activities identified in this element include dispersed recreation, nature study, hiking, and OHV use (within designated routes). The Las Vegas RMP also lists approved dispersed recreational activities, including caving, photography, automobile touring along public roads, backpacking, bird watching, hunting, primitive camping, hiking, rock climbing, OHV uses, and some water-based recreation. In addition, the Las Vegas RMP lists organized recreational activities, including model airplane fly-ins, rocketry events, dog field trials, horseback riding, bicycle events, and organized OHV events (BLM 1998). Both the CDCA Plan and the Las Vegas RMP designate specific areas as developed recreation areas, such as non-motorized trails, natural areas, and OHV routes. The proposed project traverses BLM-managed land included in the Northern and Eastern Mojave (NEMO) Management Plan, an amendment to the 1980 CDCA Plan. Recreational activities managed under the NEMO plan include OHV organized events, open areas, permitted commercial and organized activities such as bighorn sheep hunts and trail rides (BLM 2002), and land-sailing events on Ivanpah Dry Lake.

Wilderness Areas

The BLM manages congressionally designated wilderness and wilderness study areas within the NEMO planning area consistent with the California Desert Protection Act of 1994, the administrative instruments (regulations, policies, and so forth) from that statute, and other applicable federal statutes. These statutes identify management direction for these lands with respect to specific uses that may occur within a wilderness area (BLM 2002). The NEMO planning area encompasses all or portions of 24 areas of designated wilderness totaling 1,225,000 acres, eight wilderness study areas totaling 200,000 acres, and approximately 475,000 acres of "released lands." Wilderness areas traversed by the proposed project are discussed in detail in Section 3.4, "Biological Resources." Recreational uses allowed within wilderness areas include sightseeing, bird/wildlife viewing, photography, and hiking (BLM 2002).

Lake Beds

Dry lake beds provide the open space and smooth surfaces needed for such activities as land-sailing, model rocket and airplane flying, and hang gliding (BLM 2002). In addition to recreational activities occurring on lake beds, applications for filming and research are processed annually, particularly at Ivanpah and Silurian dry lakes (BLM 2002).

Ivanpah Dry Lake Recreation Area

Ivanpah Dry Lake is just off of Interstate 15 (I-15) at the California/Nevada border, close to hotels, restaurants, and casinos. Ivanpah Dry Lake is a popular recreation destination for several kinds of recreational activities, including long-distance archery, kite buggying, and kite demonstrations. BLM issues approximately 250 casual use permits per year for recreational activities on Ivanpah Dry Lake (BLM 2009). Ivanpah Dry Lake has been specifically designated for non-motorized open-space recreational activities in the BLM's CDCA Plan. The lake bed is closed to motorized vehicles, except by permit, to prevent damage from other activities that could interfere with international wind-dependent events. The project would cross the Ivanpah Dry Lake Recreation Area within a BLM-designated utility corridor on an existing ROW between MPs 28 and 31.5. Transmission Alternative Route D would cross the Ivanpah Dry Lake Recreation Area within a BLM-designated utility corridor between Alternative D MPs 2 and 3.25, where it would reconnect with the proposed route's corresponding MP 30.

The Ivanpah Desert Wildlife Management Area (DWMA), a critical biological habitat area established by the BLM, encompasses Ivanpah Dry Lake and is south of the proposed project and alternatives and east of I-15. Staging areas that allow camping have been identified in this southern region overlay; however, land-sailing is not permitted. Land-sailing is permitted both within and outside the DWMA; however, staging activities associated with land-sailing events are prohibited inside the DWMA. South of the dry lake bed, the area is primarily used for very low-level, widely dispersed motorized recreational activities (BLM 2002).

Jean/Roach Dry Lake Recreation Area

Jean/Roach Dry Lake Recreation Area provides opportunities for casual use and other types of recreation, including motorcycling, all-terrain vehicle and 4 x 4 driving, horseback riding, mountain biking, small-game hunting, and organized racing events (BLM 2007). The EITP crosses BLM lands designated for this purpose within the CDCA.

Recreational Activities and Vehicle Access

The BLM has identified specific roads and trails where some type of motorized vehicle use is appropriate and allowed either seasonally or year-round. Primary uses include low-level, widely dispersed (i.e., recreation that occurs outside of developed sites) motorized recreational activities. The area is primarily a touring through-area rather than a destination for the general public because it provides a gateway from the east to the Mojave National Preserve. Other recreational uses in the area include hunting, recreational shooting, and rock hounding (BLM 2002).

Casual-use vehicle touring is one of the most popular forms of recreation in the NEMO planning area. Small informal group events occur on a regular basis throughout the planning area and are generally related to rock and mineral collection, bird watching, equestrian use, OHV touring, wind-driven vehicle use, camping, and hiking (BLM 2002).

There are about 100 permitted organized competitive vehicle events, involving about 25,000 participants, held each year in the CDCA. In the past only about 5 percent of the total number of yearly participants took part in the long distance point-to-point events (BLM 2002).

In California, the existing access road along the 115-kV transmission line provides the necessary access to construct the proposed action, and only one spur road would be constructed to access the new Ivanpah Substation (BLM 1980). There will be no changes to any current route designations. In Nevada, several new spur roads would be constructed to access new tower locations where terrain warrants. In Nevada, OHVs are an allowable use on established roads and trails unless otherwise designated (BLM 2010).

Boulder City Annexation

The Boulder City Annexation, in Clark County, is crossed by Transmission Alternative Routes A and B and contains areas of desert land as well as utilities and energy facilities. The Boulder City Master Plan designates this area as Energy, Utility, and Preserve, which allows recreation on designated recreation trails.

Private Recreational Areas

Private recreational areas are commercial operations on private property. The Primm Valley Golf Club is an example of a private recreation site within the project area. Commercial resort facilities in the Town of Primm include casinos, swimming pools, and a roller coaster.

3.12.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of federal, state, and local laws, regulations, and standards that govern recreational resources in the project area.

3.12.2.1 Federal

California Desert Conservation Area Plan of 1980, as amended

The EITP crosses BLM lands designated as within the CDCA. The Recreation Element of the CDCA plan includes guidelines and requirements for recreational activities such as maintaining opportunities for recreational activities, minimizing land-use conflicts, accommodating visitors, and increasing public awareness of sensitive desert resources in the CDCA Planning Area (BLM 1980).

The 2002 NEMO Management Plan (BLM 2002a), an amendment to the 1980 CDCA Plan, sets guidelines and requirements for protection and preservation of CDCA lands, specifically in the northern and eastern Mojave Desert in southeastern California, which is crossed by the EITP. Provisions of the CDCA and NEMO plans are administered by the BLM.

Las Vegas Resource Management Plan, as Amended

The EITP crosses BLM lands managed under the Las Vegas RMP (BLM 1998). The RMP provides a comprehensive framework for managing resources within the planning area managed by the BLM Las Vegas Field Office, including maintaining opportunities for recreation as well as managing open spaces, trails, and parks and maintaining areas for OHV events on BLM lands. Provisions of the Las Vegas RMP are administered and enforceable by the BLM.

3.12.2.2 State of California

The EITP would be exempt from local land use and zoning laws, ordinances, regulations, and standards in California; however, in compliance with CPUC regulations requiring the utility to consult with local agencies on land use matters, SCE considered local land use plans. SCE reviewed the San Bernardino County land use plan described below.

County of San Bernardino 2007 General Plan

The EITP would cross lands in San Bernardino County that are managed under the 2007 General Plan. The plan covers standards and policies for unincorporated areas within San Bernardino County.

3.12.2.3 State of Nevada

In Nevada, the EITP would cross Clark County and several unincorporated, populated areas.

The 2003 Nevada Statewide Comprehensive Outdoor Recreation Plan

The EITP would cross lands in the State of Nevada subject to the management goals provided in the Nevada Statewide Comprehensive Outdoor Recreation Plan (SCORP), developed by the Nevada Division of State Parks to increase and improve the quality of outdoor recreation opportunities in Nevada. Although the SCORP does not issue requirements for compliance with its management goals, it describes recreational needs and issues for the state and provides strategies for improving the quality of recreational outlets based on the needs of the population (Nevada Division of State Parks 2003).

Nevada Revised Statutes

The EITP would cross lands in the State of Nevada subject to Nevada Revised Statute (NRS) 501, supplemented by the Nevada Administrative Code, a Nevada state law that covers administration and enforcement of wildlife resources within the state. NRS 501 states that "the preservation, protection, management and restoration of wildlife within the State contribute immeasurably to the aesthetic, recreational and economic aspects of these natural resources" (NRS 501.100). NRS 455B.490 addresses the effect of provisions governing recreational areas on local ordinances and laws and regulations of the State of Nevada and does not prohibit "a county, city or unincorporated town from adopting ordinances that regulate a recreation area which are consistent with the provisions of NRS 455B.400 to 455B.490, inclusive." Provisions of the NRS are administered and enforceable by the State of Nevada.

3.12.2.4 Regional and Local

San Bernardino County

The EITP would cross lands in San Bernardino County that are managed under the San Bernardino County General Plan. Recreational facilities in San Bernardino County are managed by the Regional Parks Department; recreation goals and policies are outlined in the San Bernardino County General Plan's Land Use and Open Space Elements (San Bernardino County 2007).

Clark County

The EITP would cross lands in Clark County that are managed under the Clark County Comprehensive Plan. The Plan's Recreation Element outlines standards and policies for county-managed parks, trails, and open spaces. Recreational areas and facilities designated under these plans are managed by the Clark County Parks and Community Services Department.

Boulder City Conservation Easement

The EITP would cross lands within the Boulder City Conservation Easement (BCCE), a high-priority conservation area in which development is severely limited. Established by the City of Boulder City (City of Boulder City 1994), the BCCE allows for passive use of land, including hiking and sightseeing. Regulations of the BCCE are enforceable under Boulder City Ordinance #972, Title 7, Chapter 5 (7.5-8), which lists prohibited activities, including traveling on a closed road and camping, within the easement. Vehicular travel is limited to designated open roads or private utility roads, and all open and closed roads are clearly marked.

3.12.3 Impact Analysis

This section defines the methodology used to evaluate impacts on wilderness areas and other resources providing recreational opportunities, including CEQA impact criteria. Definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. A NEPA impact summary statement and CEQA impact determinations are provided at the conclusion of the discussion. For mitigation measures, refer to Section 3.12.4.

3.12.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects on wilderness and recreation resources would result from the project, and explains the significance of those effects in the project area (40 Code of Federal Regulations [CFR] 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

Under NEPA, the proposed project would have an adverse impact if it would disrupt access to existing recreation opportunities and/or reduce the number of Special Recreation Permits.

3.12.3.2 CEQA Impact Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated,

b. include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment; or

c. disrupt access to existing recreation opportunities.

3.12.3.3 Methodology

To determine impacts that would result from construction, operation, and maintenance of the EITP on recreational opportunities in wilderness areas, the existing environment for recreation and wilderness resources within 0.5 miles of the proposed project area were evaluated against the NEPA and CEQA impact criteria noted above in Sections 3.12.3.1 and 3.12.3.2, respectively. Locations of recreational opportunities and wilderness areas were identified through several sources, including SCE (2009), U.S. Geological Survey topographic maps, BLM management plans, and consultation with wilderness and recreation specialists from the BLM Needles and Las Vegas field offices.

3.12.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measure (APM) related to recreation:

> **APM REC-1: Recreation Area Closures.** When temporary short-term closures to recreational areas are necessary for construction activities, the applicant would coordinate those closures with recreational facility owners. To the extent practicable, the applicant would schedule construction activities to avoid heavy recreational use periods (e.g., holidays or tournaments). The applicant would post notice of the closure on site 14 calendar days prior to the closure.

3.12.3.5 Proposed Project / Proposed Action

Construction

During construction, the project could impact experience of recreational activities within the project area due to restricted access and/or disruption of recreational uses in certain areas. For example, there are four annual races that use trails in the Jean/Roach Dry Lake SRMA that could be affected by construction of the proposed project. These races are the Battle at Primm, the SNORE 250, the SCORE Terrible's Primm 300, and the Henderson Fabtech Desert Classic. The Battle at Primm race occurs annually in February, typically has around 270 participants, and attracts over 6,000 people. The 36-mile SNORE 250 race typically takes place annually in October, has between 90 and 120 racers, and attracts around 4,000 people (Cox 2009). The 69-mile SCORE Terrible's Primm 300 race occurs annually in September, the first weekend after Labor Day, typically has about 150 racers, and attracts over 10,000 people. Finally, the Henderson Fabtech Desert Classic race typically takes place annually in December, typically has approximately 120 racers, and attracts over 2,000 people (Best in the Desert 2010). MM REC-1 would require the applicant to coordinate project construction with the BLM and organizers of BLM-permitted race events to ensure that construction would not interrupt events. Because event use and ROW construction is not compatible, the applicant may be required to temporarily halt use of certain routes during events.

An approximately 5-mile-long segment of the proposed project route would be constructed within 0.5 miles of Roach Dry Lake and would cross the Ivanpah Dry Lake Recreation Area between MPs 28 and 31.5. Access to the northeastern area of the Ivanpah Dry Lake Recreation Area would therefore be temporarily restricted during transmission line construction. During the construction period, recreational users would not be allowed access to the construction right-of-way (ROW). To reduce impacts, the applicant would coordinate closures with recreational facility owners and schedule construction activities to avoid heavy recreational use periods to the extent practicable (APM REC-1). Also, the applicant has stated that they would post notices of closures on site 14 days prior to the closure. Implementation of MM REC-1 would further reduce impacts by limiting construction workspace, such as contractor yards, in wildlife and recreational areas. MM REC-2 would help reduce impacts to hunters in the McCullough Pass area by requiring that the southern ROW remain open for public access during construction.

For a discussion of visual impacts on recreational users within the project area, see Section 3.2, "Aesthetics and Visual Resources."

Operation and Maintenance

Because the proposed project is replacing an existing transmission line in a designated ROW, impacts during operation and maintenance would be similar to current operations. ~~Therefore, operation and maintenance activities would not affect recreation.~~ Additionally, the proposed project will not create any new vehicle routes that will be available for public travel. The applicant proposes using the existing road along the transmission corridor to access the project. The new spur routes that will be constructed to access new transmission tower locations will be posted with signage to limit traffic to "construction traffic only" during the construction phase of the project. MM REC-3 requires the applicant to coordinate with BLM Field Offices on appropriate signage to be displayed during

construction and operations to limit public access on these new dead-end spur routes. Existing OHV designations contained in the CDCA Plan and the Las Vegas RMP will not change as a result of the EITP.

Dry Lake Reclamation

Disturbance to dry lakes resulting from EITP construction, operation, and maintenance activities could include water flow modification that could alter dry lake surfaces, changes in the visual character of a dry lake, debris and waste introduced to dry lake surfaces, and modification of existing wind characteristics that could affect the experience of wind recreationists (e.g., wind sailing activities). The applicant has incorporated the following APMs to reduce impacts and adverse effects to the existing natural setting, including dry lake surfaces: AES-4, BIO-2, GEO-3, W-2, W-4, W-6 through W-9, and W-14. In addition, the following MMs, developed specifically to address site reclamation, would reverse disturbance to dry lakes resulting from the EITP to the greatest extent possible: MM BIO-2 (Vegetation and Soils Restoration), MM BIO-3 (Restoration Plan), and MM W-4 (Dry Lake Restoration Plan), if implemented.

NEPA Summary

The proposed project would cross the Jean/Roach Dry Lake Recreation Area between MPs 10 and 27.5. Construction of the transmission line would temporarily restrict access to several trail segments in the Jean/Roach Dry Lake Recreation Area; however, as part of the project (APM REC-1), the applicant would coordinate closures of recreational facilities with the facility owners and would schedule construction to avoid heavy use periods. Additionally, MM REC-1 would further reduce the impact to recreational users by requiring the applicant to locate extra workspace areas outside of Recreation Areas. Also, MM REC-1 would ensure that the applicant coordinate project construction to avoid interruption of BLM-permitted race events. ~~Therefore,~~ With the implementation of this MM, construction activities would be limited to the construction ROW and would be minor, short term, localized, and negligible. In addition, MM REC-2 would ensure that impacts to hunters in the McCullough Pass area would be reduced during construction, and MM REC-3 would ensure that the applicant coordinates with the BLM to post signage to clarify and limit public access on spur roads in the project area. No additional impacts to recreation or wilderness areas would occur as a result of project construction or as a result of operation and maintenance of the substation or telecommunications line.

CEQA Significance Determinations

IMPACT REC-1: Disruption of Access to Existing Recreation Opportunities
Less than significant with mitigation

Construction of the transmission line would temporarily restrict access to several trail segments in the Jean/Roach Dry Lake Recreation Area; however, construction activities would be temporary and limited to the construction ROW. With implementation of APM REC-1, recreational facility closures would be coordinated with facility owners and construction would be scheduled to avoid heavy recreational use periods. Implementation of MM REC-1 would require the applicant to locate extra workspace areas outside of Recreation Areas and require construction coordination with the BLM and organizers of BLM-permitted events in the project area. Additionally, MM REC-2 would ensure that McCullough Pass' southern ROW remains open to the public during construction, thus reducing potential impacts to hunters in the area. With implementation of APM REC-1, MM REC-1, and MM REC-2, impacts to recreational opportunity access resulting from construction of the EITP would be less than significant. ~~Additionally, implementation of MM REC-1 would require the applicant to locate extra workspace areas outside of Recreation Areas, limiting construction activities to the construction ROW. Therefore, with implementation of APM REC-1 and MM REC-1, impacts to recreational opportunity access resulting from construction of the EITP would be less than significant.~~

NO IMPACT. Increased Use of Recreational Facilities. A maximum of 100 workers would be involved in construction at any one location at any one time. Construction workers would be working at several locations (spreads) along the proposed project route and could use nearby recreational facilities. Recreational facilities in the vicinity of the project may see an increase in use, but due to the small number of construction workers, this increase

would not result in substantial physical deterioration of any recreational facilities in the region or the acceleration of the physical deterioration of those facilities; therefore, there would be no impact under this criterion.

NO IMPACT. New Recreational Facilities. The proposed project would not include the construction or expansion of recreational facilities; therefore, there would be no impact to recreation for this criterion.

3.12.3.6 No Project / No Action Alternative

Under the No Project Alternative, the proposed project would not be constructed. Therefore, there would be no adverse impact on wilderness or recreational areas.

3.12.3.7 Transmission Alternative Route A

Transmission Alternative Route A would bypass a segment of line that runs north and south near MP 2.0, approximately 0.83 miles in the Boulder City Conservation Easement, outside of the BLM-designated corridor as discussed in Section 3.9, "Land Use." The potential construction and operation impacts on wilderness areas and recreational opportunities of this alternative would be similar to those associated with the proposed project.

3.12.3.8 Transmission Alternative Route B

Transmission Alternative Route B would bypass a segment of line that runs north and south near MP 2.0, approximately 0.83 miles in the in the Boulder City Conservation Easement, outside of the BLM-designated corridor as discussed in Section 3.9, "Land Use." The potential construction impacts on wilderness areas and recreational opportunities of Transmission Alternative Route B are similar to those associated with the proposed project.

3.12.3.9 Transmission Alternative Route C

Transmission Alternative Route C would begin at the Eldorado Substation and follow the proposed route to the point where the line would reach the northeastern edge of Ivanpah Dry Lake (MP 28.5). This alternative, approximately 5.2 miles in length, would cross BLM land. Alternative C would be within 0.5 miles of and adjacent to Ivanpah and Roach dry lakes and would also be within 0.5 miles of the Town of Primm. This alternative would have construction impacts on wilderness areas and recreational opportunities similar to those associated with the proposed project, but this alternative would avoid construction impacts on Ivanpah Dry Lake. Construction impacts would be negligible and less than significant. There would not be any operational impacts associated with this alternative.

3.12.3.10 Transmission Alternative Route D and Subalternative E

Transmission Alternative Route D would begin at the Eldorado Substation and follow the proposed route to the point where the line would reach the northeastern edge of Ivanpah Dry Lake (MP 28). The line would be re-routed west and southwest on a new 130-foot ROW through the Ivanpah Dry Lake for approximately 3.3 miles before rejoining the existing ROW at MP 30. The line would parallel the Los Angeles Department of Water and Power (LADWP) Marketplace–Adelanto 500-kV transmission line as it crosses through Ivanpah Dry Lake. This alternative would cross BLM land for 3.2 miles and a northern portion of Ivanpah Dry Lake for approximately 1.0 mile, and would be within 0.5 miles of Roach Dry Lake and the Town of Primm. Subalternative E would cross private land for 0.7 miles, within 0.5 miles of BLM lands.

Both Alternative D and Subalternative E would reduce the overall transmission footprint, since the EITP towers would follow to the extent feasible the existing LADWP 500-kV ROW. Reducing the transmission footprint across the Ivanpah Dry Lake would leave more open space for recreation which would lessen the EITP's impact on recreation.

Construction of Alternative D would temporarily restrict access to the northwestern area of the Ivanpah Dry Lake Recreation Area, resulting in a short-term, moderate impact to the Ivanpah Dry Lake Recreation Area. Implementation of MM REC-1 would prevent construction activities from occurring during peak recreational use of the Recreation Area. This would reduce impacts, which would be adverse and unavoidable, to the Ivanpah Dry Lake Recreation Area to short term and minor. With this mitigation, the impact would be less than significant. Operational impacts associated with Alternative D and Subalternative E would be negligible.

3.12.3.11 Telecommunication Alternative (Golf Course)

The potential construction impacts on wilderness areas and recreational opportunities of the Golf Course Telecommunication Alternative would be similar to those associated with the proposed project. This alternative would require construction underneath the golf course surface during installation of telecommunication wires in an underground duct. Construction activities would not prohibit or restrict access to the Primm Valley Golf Club but could result in temporary and minor impacts from noise and dust. Impacts would be minimized through coordination of construction activities with golf course management personnel. The impacts would be negligible and less than significant. There would not be any operational impacts associated with this alternative.

3.12.3.12 Telecommunication Alternative (Mountain Pass)

The potential construction and operation impacts on wilderness areas and recreational opportunities of the Mountain Pass Telecommunication Alternative would be similar to those associated with the proposed project.

3.12.4 Mitigation Measures

MM REC-1: Limit Construction Workspace in Wildlife and Recreational Areas. The applicant will not site extra workspace areas such as contractor yards in Recreation Areas to minimize impacts on recreational users during construction. ~~MM REC-1 will not require any monitoring, reporting, or other similar action.~~ In addition, the applicant will coordinate with the BLM, as well as organizers of BLM-permitted races and events in the project area, to ensure that project construction will not interrupt events.

MM REC-2: Notify the Nevada Department of Wildlife of Any Road Closures During Hunting Season. To allow access for hunters in the area, the applicant will not close the southern right-of-way of the McCullough Pass during construction. The applicant will notify NDOW of any road closures during hunting season at least 30 days prior to closure.

MM REC-3: Display Appropriate "Closed" Signage for New Spur and Access Roads Constructed. The applicant will coordinate with BLM Field Offices on displaying appropriate "closed" signage at the entrance to new spur roads to tower locations and access roads. This includes temporary signs during the construction phase of the project and permanent signs and/or vehicle barriers that will close the spur routes to public travel.

3.12.5 Whole of the Action / Cumulative Action

~~Below is a brief summary of information related to recreation in the ISEGS Final Staff Assessment / Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

Information on recreation related to the ISEGS project is summarized below. The setting for the ISEGS project is described, followed by methodologies used and summaries of the impact conclusions presented in the California Energy Commission's (CEC's) Final Staff Assessment (FSA), Addendum, and Final Decision and the BLM's Final Environmental Impact Statement (EIS). Required mitigation measures and conditions of certification are listed.

3.12.5.1 ISEGS Setting

The ISEGS project would be located in the Ivanpah Valley on a site currently accessible to the public and used to access hiking, hunting, and/or viewing areas in the Clark Mountains~~;~~, the Stateline and Mesquite Wilderness~~;~~, the Primm Valley Golf Course~~;~~, the Primm Casinos~~; or~~, and the Ivanpah Valley and playa (see Section 3.12.1.2). Roads within and adjacent to the ISEGS site are used annually for the Los Angeles, Barstow to Las Vegas Dual Sport Motorcycle Tour. The ISEGS ~~Project~~ project would be ~~located~~ less than 2 miles west of the Ivanpah Dry Lake and about 4.5 miles southeast of the Town of Primm and would be within 0.5 miles of the Primm Valley Golf Course.

Applicable Laws, Regulations, and Standards

The BLM's FEIS and the CEC's FSA for the ISEGS project lists the Federal Land Policy and Management Act, the CDCA Plan, and the NEMO Management Plan as applicable to the ~~proposed~~ ISEGS project (see Section 3.12.2). ~~Because~~ Additionally, because the ISEGS project would be under the authority of the CEC~~, unlike the EITP,~~ as well as the BLM's FEIS and CEC's FSA~~/DEIS~~ lists the Warren-Alquist Act. Section 25529 of this act gives statutory authority to the CEC to require, as a condition of certification, that an area be established for public use when a facility is proposed to be located in the coastal zone or any other area with recreational, scenic, or historic value.

3.12.5.2 ISEGS Methodology

CEC FSA Methodology

To evaluate whether the ~~proposed~~ ISEGS project ~~and alternatives~~ would generate a potentially significant impact on recreational resources under CEQA, CEC staff evaluated the resources against checklist questions ~~posed~~ provided in the 2006 CEQA Guidelines, Appendix G ~~(see Section 3.12.3.2).~~, Environmental Checklist established for Recreational Resources. These questions are:

A. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

B. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

BLM FEIS Methodology

Under NEPA, the ~~ISEGS FSA/DEIS assessed~~ BLM's FEIS assesses the significance of ~~the proposed project's~~ ISEGS's impact on recreational resources against NEPA-implementing regulations ~~at~~ in 40 CFR 1508.27 (see Section 3.12.3.1). Specifically, the BLM's FEIS evaluated whether the ISEGS project would result in impacts related to the following:

- Fencing of the project area, eliminating direct usage of the area for recreation;
- Modification of the visual character of the area, affecting the quality of the experience for certain recreational users; and
- Modification of wind or surface characteristics on Ivanpah [Drylake], thus affecting the quality of that surface in supporting land sailing and other recreational uses.

3.12.5.3 ISEGS Impacts

The CEC and BLM staff determined that construction, operation, and decommissioning of the ISEGS project ~~could impact~~ would be unlikely to have significant or adverse impacts on recreational resources, ~~particularly on Ivanpah Dry~~

~~Lake. Where impacts were identified, the CEC and BLM staff proposed mitigation measures to reduce~~ and that any impacts would be reduced to less than significant ~~levels~~ with the mitigation identified in Section 3.12.5.4.

CEC's FSA/Addendum Impact Conclusions

The ISEGS project would have no direct or indirect significant impacts to recreational resources under CEQA. The ISEGS project would not increase the use of parks or recreational facilities to the extent that physical deterioration of such facilities would occur. Additionally, the proposed project does not include the construction or expansion of recreational facilities. Therefore, the ISEGS project would not have a significant impact based on either of the criteria listed above under Section 3.12.5.2. Additionally, although the proposed project would indirectly impact recreational uses by imposing a visual viewscape that might reduce the desert experience for some recreational users, and by re-directing traffic that currently uses existing roads within the ISEGS project area to access recreation destination, these impacts are not considered significant under CEQA.

BLM's FEIS Impact Conclusions

Construction Impacts

~~Construction of the ISEGS project could have a direct impact on recreational use of Ivanpah Dry Lake for land-sailing events if the facility resulted in any of the following effects: modification of water flow and sedimentation rates on the dry lake surface; or introduction of foreign materials (garbage, debris, or hazardous materials) to the lake surface; modification of wind characteristics. A direct impact could also result if the visual character of the facility were to present a distraction that could cause either a nuisance or a safety hazard for wind-sailors.~~

~~The ISEGS FSA/DEIS concludes that the ISEGS project is not expected to have significant impacts on recreational resources within the proposed project boundaries and would be unlikely to notably impact the characteristics of wind or the Ivanpah Dry Lake surface, which affects its use for land-sailing, with the implementation of suggested mitigation measures. However, there would be adverse impacts on recreational resources outside of the project boundaries because the quality of the outdoor setting would be diminished. Although the FSA/DEIS concludes that such impacts would be adverse, they are not expected to result in a decrease in recreational use of the area because users are generally focused on a specific recreational activity (e.g., land-sailing on Ivanpah Dry Lake, rock climbing on Clark Mountain, or hiking and camping in BLM wilderness), which would continue to be available without interruption.~~

The ISEGS project is not expected to have adverse impacts on recreational resources within the ISEGS project boundaries. This is because there are no substantial uses of the area for recreation, and the rerouting of the affected routes of travel around the ISEGS project boundaries is expected to cause only a minor inconvenience. ISEGS may adversely impact recreational resources outside of the project boundaries by diminishing the quality of the outdoor setting; however, these adverse impacts are not considered intense enough to cause visitation to decrease, because the recreationists are generally focused on a particular recreational experience, e.g. land sailing on Ivanpah Dry Lake, rock climbing on Clark Mountain, or hiking and camping in BLM wilderness, which would continue to be available. For example, although the ISEGS project area includes OHV trails, these are primarily used to access other areas. With re-routing of these trails around the facility, the ISEGS project would not result in an adverse impact to recreational access.

Operational Impacts

Impacts on recreation from the operation of ~~the~~ ISEGS would be similar to those discussed under Construction Impacts, above.

Decommissioning Impacts

Once the ISEGS generation plant operations end and all generation facilities and equipment were removed from the site, the site would be re-contoured and reclaimed to mirror the natural setting. Roads not needed for public access

through the area would be reclaimed during this time; roads that would be used by the public would remain open to vehicular use. Decommissioning of ISEGS would restore the ISEGS site to its former "natural" setting and the land would revert to pre-construction status, allowing the same types of pre-construction dispersed recreational uses.

3.12.5.4 ISEGS Conditions of Certification / Mitigation Measures

CEC Conditions of Certification

Conditions of certification are not required under CEQA, as impacts would be less than significant; however, to comply with the Warren-Alquist Act, the FSA proposes **REC-1.**

REC-1: Prior to the start of construction and in conformance with § 25529 of the Warren-Alquist Act, the project owner shall prepare plans for a Solar~~/~~ / Ecological Interpretive Center to be developed in the ISEGS Construction Logistics Area and submit ~~the plans~~ them to BLM's Authorized Officer and the CPM for review and approval. The plans shall propose a location that~~,~~ if possible~~,~~ provides a vantage point to observe as many features as is possible of the ISEGS project without compromising ISEGS security requirements. The Solar/Ecological Interpretive Center shall include the following features:

1. surfaced public parking for 12 vehicles (four of which would allow vehicles with trailers);
2. information kiosks describing ISEGS solar energy technology;
3. picnic area with eight shaded tables;
4. garbage cans;
5. interpretive signs identifying local landmarks and ecological features;
6. a two-stall contained restroom facility (or a facility with flush toilets and sinks);
7. a drinking fountain; and
8. native plant landscaping with plant identification labels.

Prior to commercial operation of the first constructed power plant of the ISEGS development, the project owner shall complete construction of the Solar /Ecological Interpretive Center and request final approval by both BLM's Authorized Officer and the CPM. The project owner shall operate and maintain the Solar /Ecological Interpretive Center for the life of the ISEGS project.

After commercial operation and in each Annual Compliance Report for the life of the ISEGS project, the project owner shall provide a summary of estimated public utilization of the Solar / Ecological Interpretive Center and summarize any issues associated with operation and maintenance activities.

BLM Mitigation Measures

The BLM recommends mitigation measures ~~to reduce impacts on Ivanpah Dry Lake:~~ HAZ-1 through HAZ-6, SOIL&WATER-5, and WASTE-1 through WASTE-7~~, and SOIL&WATER-5~~ to reduce impacts on Ivanpah Dry Lake. These impacts and mitigation measures are further discussed in this EITP FEIS in Section 3.7, "Hazards, Health, and Safety"; Section 3.8, "Hydrology and Water Quality"; and Section 3.11, "Public Services and Utilities," respectively. The BLM's FEIS also carried forward REC-1, although it is a CEC-specific requirement. REC-2, below, is a BLM-specific requirement, which was not included in the original combined CEC/BLM FSA/DEIS.

REC-2: The applicant shall allow and be required to afford public access to the routes for which BLM grants a right-of-way.

3.12.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for recreational resources were based on similar significance criteria that evaluated the extent to which the proposed projects would increase the use of recreational facilities, require construction or expansion of recreational facilities, or disrupt access to existing recreational opportunities.

The proposed EITP route would cross the Jean/Roach Dry Lake Recreation Area and, during construction, would temporarily restrict access to several trail segments in that area, but the applicant would coordinate closures of recreational facilities with the facility owners and would schedule construction to avoid heavy use periods (APM REC-1). Additionally, MM REC-1 would further reduce impacts on recreational users by requiring the applicant to locate extra workspace areas outside of recreational areas. The proposed ISEGS project area is not substantially used for recreational purposes. Rerouting affected routes of travel around the ISEGS project boundaries to access recreation is expected to cause only a minor inconvenience. Rerouting is not expected reduce visitation for recreation.

The CPUC concluded that the temporary disruption of access to the Jean/Roach Dry Lake Recreation Area would be less than significant with incorporation of MM REC-1. The agency concluded that the EITP would have no impact related to increased use of recreation facilities or the need for additional or expanded recreational facilities (Section 3.12.3.5, "Proposed Project / Proposed Action," "CEQA Significance Determinations"). The CEC concluded that the ISEGS project would have no direct or indirect significant impacts on recreational resources under CEQA (Section 3.12.5.3, "ISEGS Impacts," "CEC's FSA/Addendum Impact Conclusions").

The BLM concluded that construction activities for the EITP would be limited to the construction ROW and would be minor, short term, localized, and negligible. No additional impacts on recreation or wilderness areas would occur as a result of project construction or as a result of operation and maintenance of the substation or telecommunications line (Section 3.12.3.5, "Proposed Project / Proposed Action," "NEPA Summary"). Similarly, the BLM concluded that the ISEGS project would not have adverse impacts on recreational resources during construction, operations, or decommissioning. However, two ISEGS mitigation measures were included as conditions of certification. One would require that a Solar / Ecological Interpretive Center be developed, and the other would ensure that public access to BLM lands be maintained (Section 3.12.5.3, "ISEGS Impacts," "BLM's FEIS Impact Conclusions").

Together, impacts from the two projects would have a minor short-term contribution or less than significant contribution with mitigation to impacts on recreation in the Jean/Roach Dry Lake Recreation Area due mainly to construction of the EITP. See also Section 5.3.11.4, "Cumulative Impact Analysis," for a discussion of cumulative impacts of restricting access to areas within the Jean/Roach Dry Lake Recreation Area.

3.13 Socioeconomics, Population and Housing, and Environmental Justice

This section describes the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the EITP and alternatives with respect to socioeconomics, population and housing, and environmental justice.

3.13.1 Environmental Setting

The EITP area comprises areas of Clark County, Nevada, and San Bernardino County, California. This area includes the community of Boulder City, Nevada, and the townships of Primm, Nevada and Nipton, California. The proposed transmission line route begins southwest of Boulder City, Nevada at the existing Eldorado Substation. The route would cross through Primm, Nevada and the Ivanpah Dry Lake and end at the proposed Ivanpah Substation in San Bernardino County (Figure 1-1) northwest of Nipton. Socioeconomic baseline data characterizing these communities is provided below.

3.13.1.1 Regional Setting

The EITP would be located in the Mojave Desert of southern California and Nevada. The construction, operation, and maintenance of new and upgraded transmission facilities would span approximately 28 miles in southern Clark County and 7 miles in northeastern San Bernardino County. For the purpose of this analysis, the discussion focuses on two distinct regional areas that comprise the EITP area: (1) the Clark County Region and (2) the San Bernardino County Region. The boundaries for each of these regions are described below. In San Bernardino County, California, elements of the EITP would be constructed in the immediate vicinity of unincorporated Mountain Pass, Nipton, and Wheaton Springs. In Clark County, Nevada, elements would be constructed in the Town of Primm and southwest of Boulder City. Additional unincorporated areas that are in the EITP area include Goodsprings, the Town of Jean, Ripley (Sandy Valley), and Searchlight in Clark County, Nevada. In addition to incorporated and unincorporated county and city land, the right-of-way (ROW) for the EITP also traverses private land in both California and Nevada and land managed by the BLM.

Table 3.13-1 provides regional population and density data. Table 3.13-2 shows the demographic make-up of the two regional areas under evaluation. San Bernardino County has 24 incorporated cities and Clark County has five. To characterize population, housing, median household income, current and projected population growth, housing stock, and industry data are summarized for each regional area. The percentage of individuals below the poverty level is provided to give an indication of the socioeconomic variables needed to analyze environmental justice for the proposed project.

Table 3.13-1 Regional Population and Density

	Clark County, Nevada	San Bernardino County, California
Population, 2000	1,375,765	1,709,434
Population Estimate, 2008	1,865,746	2,015,355
Change in Population April 1, 2000 to July 1, 2008	35.6%	17.9%
Average Annual Growth Rate (2000–2008)	4.5%	2.24%
Housing Units, 2008	810,602	687,352
Land Area (square miles), 2000	7,910.34	20,052.50
Persons per Square Mile, 2000	173.9	85.2

Source: U.S. Census Bureau 2009

Table 3.13-2 Regional Population Demographics 2006–2008

Total Population	Clark County, Nevada	San Bernardino County, California
Gender		
Male	50.9%	50.2%
Female	49.1%	49.8%
Race		
White	71.8.5%	60.4%
Black	9.6%	8.8%
American Indian and Alaska Native	0.7%	1.0%
Asian	7.1%	5.9%
Native Hawaiian and Other Pacific Islander	0.6%	0.3%
Persons reporting two or more races	3.3%	4.1%
Hispanic or Latino	27.7%	46.7%
White persons not Hispanic	53.2%	37.2%
Disability		
Persons with a disability, age 5+	264,470	302,693
Socioeconomics		
Median household income	$59,954	$56,575
Per capita income	$28,138	$22,243
Poverty		
Percentage of individuals below poverty level	10.5%	13.4%

Source: U.S Census Bureau 2009
Note: The columns do not total 100% because the total varies depending on the categories selected.

In late 2007 and early 2008 as the effects of the global financial crisis began to affect the world's economies, an economic downturn became evident in the United States. This has affected economic growth, resulting in a reduction in employment and housing development in many areas. Both Clark County and San Bernardino County have been affected by increasing unemployment and decreasing housing development and population growth.

3.13.1.2 Clark County

The EITP transmission line route and its alternatives would follow a BLM-designated utility corridor through the Boulder City Conservation Easement (from Milepost [MP] 0 to 7) and would continue southwest toward the Town of Primm, Nevada, and unincorporated areas in Clark County. The County encompasses 7,910.34 square miles of land area and had a population density of 173.9 persons per square mile in 2008 (U.S. Census Bureau 2009)—an increase of 26.2 percent between 2000 and 2008, from 1.4 million to 1.86 million people (U.S. Census Bureau 2009). Prior to the economic downturn, the Clark County Comprehensive Plan (CCCP) projected that the population would grow rapidly, increasing to almost 3,000,000 by the year 2020—an increase of almost 69 percent (Clark County 2006b). This projected growth implies an annual average growth rate of 3.3 percent. It is reasonable to expect that after the economic downturn the population will grow, but it is difficult to determine if growth will correspond with CCCP projections.

Population and Housing Characteristics: Clark County, Nevada

The following section describes additional population and housing characteristics in the Clark County region. Table 3.13-3 compares population and housing trends in the Clark County region from 2000 to 2030. The information presents current population estimates and projections for Clark County and for cities (both incorporated and unincorporated) within the proposed project area. The following data were extracted from the CCCP and the Clark County 2030 Population Forecast developed by the University of Nevada, Las Vegas, Center for Business and Economic Research. The estimated population increase for Clark County is expected to be approximately 58 percent

between 2000 and 2010, an approximate average annual growth rate of 5.8 percent. Projections for growth were not available for the smaller jurisdictions of Boulder City, the Town of Jean, and the Town of Primm.

Table 3.13-3 Projected Population Trends, Clark County Region 2000–2030

			Projected Growth, 2000–2010			*Projected Growth, 2010–2020*			*Projected Growth, 2020–2030*	
	2000 Census	2010 Projection	Change (Number of People)	Change (%)	2020 Projection	Change (Number of People)	Change (%)	2030 Projection	Change (Number of People)	Change (%)
Clark County, NV	1,375,765	2,253,000	877,235	64	2,978,000	725,000	32	3,454,000	476,000	16
Boulder City, NV	15,551	18,000	2,449	16	*N/A*	*N/A*		*N/A*	*N/A*	
Jean, NV	600	915	315	53	*N/A*	*N/A*		*N/A*	*N/A*	
Primm, NV	261	1,060	799	306	*N/A*	*N/A*		*N/A*	*N/A*	

Sources: University of Nevada, Las Vegas (Center for Business and Economic Research); Clark County 2006b; Nevada Small Business Center, Nevada State Demographer 2009.

As discussed above in Section. 3.13.1.1, both home sales and values have been trending downwards in the region in the last two years. Table 3.13-4a presents existing housing market information for the EITP area for 2000. More recent values (2006–2009) were obtained from the Nevada Association of Realtors for the greater Las Vegas metropolitan area; these trends are shown in Table 3.13-4b.

Table 3.13-4a Clark County Housing, 2000

	Housing Units, 2000 (U.S. Census)			Housing Units, 2008 (Clark County)
Location	Total Housing Units	Median Value of Owner-Occupied Homes	Vacancy Rates [1]	Total Units
Clark County	559,799	$139,000	6.15	784,688
Boulder City	6,385	$172,500	5.8	6,787
Jean, NV	0	N/A	N/A	0
Primm, NV	684	N/A	N/A	684

Source: U.S. Census 2000, Clark County 2006c

Note:

[1] Census data average of homeowner and rental vacancy rates for Clark County (2.6% to 9.7%, average 6.15%) and Boulder City (2.1% to 9.5%, average 5.8%).

Table 3.13-4b Recent Trends in Median Single Family Home Prices in the Greater Las Vegas Metropolitan Area

Year	Median Home Price
2006	$317,400
2007	$297,700
2008	$220,500
2009 (1st & 2nd quarter)	$141,800
2009 (Boulder City, NV)	$153,282
Percent Change in Median Home Sales Prices	
Jan 2008–May 2009	-39.7%
Jan 2008–May 2009 (Boulder City)	-12.37%

Source: Nevada Association of Realtors

Local Economy and Workforce Characteristics: Clark County, Nevada

Table 3.13-5 provides Bureau of Labor Statistics' employment data for Clark County. In September 2009, the region as a whole had more than 1,011,538 workers. Construction, leisure and hospitality, retail trade, and services are the largest employment sectors for the region. The region has been severely affected by the recent economic recession and the Clark County unemployment rate increased from 6.6 percent in 2008 to 12.1 percent in November 2009.

Table 3.13-5 Clark County Employment Characteristics in 2008

Industry	Employment
Agriculture (private)	124
Construction (private)	92,364
Manufacturing (private)	25,363
Wholesale trade (private)	23,893
Retail trade (federal, private)	100,118
Transportation and warehousing (federal, private)	37,477
Information (local, private)	11,827
Finance, insurance (federal, private)	26,630
Professional and business services (federal, private)	111,680
Educational and health services (federal, state, private)	77,818
Leisure and hospitality (federal, state, private)	269,806
Other services (except public administration)	20,738
Public administration (federal, state, local)	39,451
Total employed, all industries	905,267
Unemployment (November)	118,986 (12.1%)

Source: Bureau of Labor Statistics 2008

3.13.1.3 San Bernardino County

San Bernardino County extends from the Nevada border on its eastern boundary to Los Angeles County on the western boundary. This area includes the EITP segments that would traverse parts of the unincorporated areas of Mountain Pass and the town of Nipton. San Bernardino County encompasses 20,052.50 square miles of land and has a population density of 85.2 persons per square mile (U.S. Census Bureau 2009). The western part of San Bernardino County is more densely populated than the eastern part, which includes the EITP area; the EITP area of the county is more rural.

Population and Housing Characteristics: San Bernardino County, California

The population of San Bernardino County was projected to increase by 35.6 percent between 2000 and 2010, from 1.7 million in 2000 to 2.1 million in 2010, according to the U.S. Census Bureau. The San Bernardino County General Plan (San Bernardino County 2007) also projects population growth, to over 2,830,000 by the year 2020, an increase

of almost 60 percent. Although this projected growth rate has clearly been affected by the economic downturn of the last two years, it is anticipated that population growth will resume as the economy recovers and will eventually match current projections. Tables 3.13-6 and 3.13-7 provide population and housing demographic data for San Bernardino County.

Table 3.13-6 San Bernardino County Projected Population Trends, 2000–2030

		Projected Growth, 2000–2010			Projected Growth, 2010–2020			Projected Growth, 2020–2030	
2000 Census	2010 Projection	Change (Number of People)	Change (%)	2020 Projection	Change (Number of People)	Change (%)	2030 Projection	Change (Number of People)	Change (%)
Regional Population and Growth Projections									
1,709,434	2,133,377	423,943	25	2,456,089	322,712	15	2,762,307	296,218	12
Household Projections									
1,664,402	2,008,900	344,498	21	Not Available	Not Available		Not Available	Not Available	

Source: CDF 2007, U.S. Census 2009

Table 3.13-7 San Bernardino County Housing, 2000 and 2008

U.S. Census (2000)			CDF (2008)
Total Housing Units	Median Value of Owner-Occupied Homes	Vacancy Rates	Total Units
667,836	$150,000*	11.5%	778,245

Source: U.S. Census 2009 (based on data from 2000), CDF 2009

Notes:

CDF = California Department of Finance

* Value is from the California Association of Realtors Median Price of Existing Single-Family Homes October 2009 data set. The value is 26.2% lower than in October 2008 ($203,211).

For the purposes of the analysis, the population growth projections of Mountain Pass and Nipton are considered as unincorporated areas of San Bernardino County and included in the San Bernardino County population. The Southern California Association of Governments (SCAG) projects a total increase in population from 2010 to 2030 equal to 775,704 or a 35.5 percent increase.

Current housing conditions within the San Bernardino County Region are shown in Table 3.13-7. There were 667,836 total housing units with 76,801 of these units vacant, creating a vacancy rate of 11.5 percent.

Local Economy and Workforce Characteristics: San Bernardino County, California

As discussed in Section 3.13.1.1, employment and population growth have been trending downwards within the region in the last two years. The San Bernardino County unemployment rate increased from 8 percent in 2008 to 13.8 percent in September 2009.The labor force characteristics of the EITP regional area for San Bernardino County are part of the Riverside-San Bernardino-Ontario Metropolitan Statistical Area as defined by the U.S. Census Bureau. Table 3.13-8 provides employment data for San Bernardino County based on the Bureau of Labor Statistics Quarterly Census of Employment and Wages. In September 2009, the region as a whole had 867,057 workers in its labor force.

Table 3.13-8 San Bernardino Employment Characteristics in 2008

Industry	Employment
Agriculture (private)	2,816
Construction (private)	35,973
Manufacturing (private)	58,144
Wholesale trade (private)	34,607
Retail trade (federal, private)	85,884
Transportation and warehousing (federal, private)	44,863
Information (local, private)	7,543
Finance, insurance (private)	15,662
Professional and business services (federal, local, private)	79,093
Public administration (federal, state, local)	36,190
Total employed, all industries	649,531
Unemployment (November)	120,453 (13.8 %)

Source: Bureau of Labor Statistics 2008

3.13.1.4 Environmental Justice: Racial Composition and Minority Populations

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," mandates that each federal agency ensure that achieving environmental justice is part of its mission by identifying and addressing as appropriate "disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations" (Council on Environmental Quality [CEQ] 1997). In accordance with guidance from the CEQ, the demographic assessment for the EITP identifies minority or low-income populations or both within a 5-mile radius of the proposed route. CEQ states that "minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent, or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis" (CEQ 1997). Although not required under CEQA, environmental justice is assessed for purposes of BLM's analysis of the EITP under NEPA.

The racial composition of each county, municipality, and census tract near the EITP was assessed to determine whether these communities were composed of significantly higher proportions of minority and low-income populations compared with surrounding areas. According to Environmental Justice: Guidance under the NEPA, minority individuals are defined as members of the following ethnic groups: American Indian or Alaskan Native, Asian or Pacific Islander, African American, not of Hispanic Origin, or Hispanic.

The purpose of this analysis of environmental justice is to determine whether there is disproportionate representation of minority or low-income populations within a potentially affected the EITP area. The EITP would cause environmental justice impacts if it were to cause disproportionately high and adverse impacts on an existing minority or low-income population. This analysis was conducted in accordance with the document, "Final Guidance for Incorporating Environmental Justice Concerns," in "U.S. EPA's National Environmental Policy Act Compliance Analysis" (Unites States Environmental Protection Agency April 1998). For this analysis, populations were defined as "minority" if:

- The minority population of the affected area is greater than 50 percent of the affected area's general population; or
- The percentage of minorities in the area's population is meaningfully greater than the percentage of the minority population in the general population or other appropriate unit of geographical analysis.

The steps recommended by the above-mentioned guidance documents to assure compliance with the Executive Order are: (1) outreach and involvement; (2) screening-level analysis to determine the existence of a minority or low-

income population; and (3) if warranted, a detailed examination of the distribution of impacts on segments of the population. Implementation of this environmental justice analysis demonstrates a concerted effort to comply with the Executive Order.

Demographic data were gathered for census tracts that would be crossed by the transmission line and also those within a 2-mile radius of the Ivanpah Substation. The census tract was determined to be an appropriate geographic unit because the presence of distinct minority communities would not be concealed or diluted by this level of aggregation. To assess the composition of the communities in immediate proximity to the transmission line, census tract, minority population proportions, and poverty indicators were reviewed. For the EITP, the total populations evaluated within the regional study areas were extrapolated from large U.S. Census blocks, which are approximately 65 miles wide and have captured populations extending throughout Clark County to include Boulder City and the southern Las Vegas. The only population along the proposed route is located at the Desert Oasis Apartment Complex in Primm, Nevada. The income and racial characteristics of this complex have not been identified; however, it does house casino and other service employees. Table 3.13-9 provides regional population demographics.

Environmental justice guidance defines "low-income population" using statistical poverty thresholds as defined by the U.S. Census Bureau. Poverty levels indicate the percentage of the population that has income below that necessary for basic necessities, such as adequate housing, food, transportation, energy, and health care. Table 3.13-9 shows the poverty level of the populations of San Bernardino and Clark counties for both counties and also by census tract. To determine whether the proposed project would affect low-income populations, the percentage of individuals in the areas affected by the proposed project is compared with county and state averages.

Table 3.13-9 shows the minority community proportion of the total population increasing toward the northeast within census tracts along the proposed transmission line route. The plot shows that some communities where the transmission line would be located have minority population aggregations that are in fact lower than county averages. The table also shows the county averages compared with the constituent census tracts.

In the State of California, approximately 14.2 percent of the population is below the U.S. Census Bureau's defined poverty level. In Clark County, approximately 10.5 percent of the population is below the U.S. Census Bureau's defined poverty level. In San Bernardino County, approximately 13.4percent of the population is below the U.S. Census Bureau's defined poverty level. Within three of the census tracts in Clark County that could be affected by the proposed project, more than 20 percent of the population is below the defined poverty level, double the Clark County average of 10.5 percent.

3.13.1.5 Tourism

Las Vegas is a premier tourist destination, and McCarran International Airport has become a major aviation transportation hub in the southwestern U.S., necessitating future expansion in the form of the proposed Southern Nevada Supplemental Airport, which would be located between the Town of Jean and the Town of Primm. The ~~communities~~Town of Primm and the Town of Nipton also derive income from tourism in the region as border cities between the states of Nevada and California. The Town of Primm attracts visitors to its casinos and shopping attractions and also benefits from tourism revenue generated by visitors to the Ivanpah Dry Lake. Nipton, also an unincorporated community, is considered a historic Mojave Desert town and is highly frequented by visitors to the Mojave National Preserve.

Table 3.13-9 Racial Composition of Census Tracts Along the Proposed Project Route (2000)

From Milepost	To Milepost	Census Tract	Minority [a] (%)	White (%)	Black or African American Only (%)	American Indian and Alaska Native Only (%)	Asian Only (%)	Native Hawaiian and Other Pacific Islander Only (%)	Some Other Race Only (%)	Hispanic or Latino (%)	Two or More Races (%)	Below Poverty Level [b] (%)
San Bernardino County			53.5	44.0	8.8	0.6	4.6	0.3	0.2	39.2	2.5	13.4
82.88	87.08	012100	22.9	74.3	5.2	1.1	1.7	0.1	0.2	14.7	2.8	11.1
87.08	88.65	011900	30.8	66.9	2.3	1.3	1.3	0.3	0.3	25.3	2.3	13.3
89.45	96.69	011600	19.3	77.9	2.2	0.6	1.6	0.1	0.1	14.8	2.8	4.6
96.69	195.05	010300	37.8	57.7	12.8	1.2	2.3	0.8	0.3	20.5	4.5	3.6
Clark County			37.1	60.2	8.8	0.6	5.2	0.4	0.1	22.0	2.7	10.5
195.05	212.04	005703	33.6	64.4	13.4	0.6	5.0	0.2	0.0	14.4	2.0	17.6
212.04	223.63	005710	10.5	88.2	1.5	0.4	3.2	0.1	0.0	5.2	1.3	19.6
223.63	226.40	002815	15.8	82.6	1.8	0.6	5.7	0.4	0.4	6.8	1.6	17.9
226.40	229.76	005816	10.6	87.8	1.2	0.4	1.0	0.2	0.1	7.7	1.6	21.3
229.76	231.57	002963	10.7	87.0	1.7	0.8	1.8	0.0	0.1	6.2	2.3	20.4
231.57	233.46	002962	16.7	81.2	5.3	0.7	2.5	0.4	0.1	7.9	2.0	26.5

Source: U.S. Census Bureau 2000a

Notes:

[a] Minority aggregation includes the sum of Black, Asian, American Indian and Alaskan Native, Hawaiian and other Pacific Islander, and some other races.

[b] Taken from the 2006–2008 U.S Census Bureau 3-year estimates.

The local economy in the vicinity of the transmission route depends primarily on the arts, entertainment, and recreation industries as sources of employment and tax revenues to support public services. The most recent data show that the region employed 28.8 percent of the labor force in hotel and gaming related activities (LVCVA 2008). Combined employment for resorts/casinos totaled 51,250, or 5.5 percent of the county total of 933,200 in 2008 (Clark County 2006a). About 39 million visitors came to the area in 2007. Tourists accounted for 33 million of this total (84 percent) while the remaining 6.2 million were convention delegates (16 percent). Visitors provide a substantial economic stimulus to the region through secondary effects from spending on goods and services. Visitors to Las Vegas contributed nearly $41.6 billion to the area economy in 2007. Gaming revenues alone were $11 billion in 2007 (LVCVA 2008).

3.13.2 Applicable Laws, Regulations, and Standards

The following section summarizes federal, state, and local laws, regulations, and standards that are applicable to socioeconomics, population and housing, and environmental justice in the proposed project area.

3.13.2.1 Federal

A general description of NEPA requirements is provided in Section 3.1. Details of NEPA impact assessment criteria for socioeconomics, population, and housing are provided in Section 3.13.3.1.

Executive Order 12898 (Environmental Justice)

Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629) and the CEQ regulations (CEQ 1997) apply to projects that may have potential adverse impacts on low-income and minority populations. The Executive Order requires that impacts on minority or low-income populations be analyzed for the geographical area in which the project would be located to determine if there would be a disproportionately high and adverse impact on minority and/or low-income populations. If the demographic analysis reveals that disproportionately high and adverse impacts would occur, mitigation steps must be proposed to address the effects, pursuant to federal regulation. Standard approved methods for evaluation of environmental justice impacts are included within the CEQ document, "Environmental Justice Guidance under the National Environmental Policy Act" (1997). These methods were used for the evaluation of the proposed project that is described in this section.

BLM H-16010-1 Land Use Planning Handbook – Appendix D, Section IV Environmental Justice Requirements

This document provides guidance for assessing potential impacts on population, housing, and employment as they relate to environmental justice. It also describes variables such as lifestyles, beliefs and attitudes, and social organizations with respect to environmental justice. These variables were not evaluated in this analysis, as they are cannot be readily quantified for the purposes of impact assessment and do not provide any additional analytical value in terms of evaluating potential environmental justice impacts.

3.13.2.2 State

There are no specific state regulations pertaining to socioeconomics, population, and housing other than CEQA. A description of CEQA requirements is provided in Section 3.1. CEQA impact assessment criteria pertaining to socioeconomics, population, and housing are provided in Section 3.13.3.2.

3.13.2.3 Regional and Local

San Bernardino County

The 2007 General Plan for San Bernardino County, California, outlines standards and policy for unincorporated territory within the county (San Bernardino County 2007). The plan defines three county planning regions (Valley, Mountain, and Desert). The proposed project is within the Desert Planning Region, which includes all of the unincorporated area of San Bernardino County lying north and east of the Mountain Planning Region. The Desert Planning Region, the largest of the three, includes a significant portion of the Mojave Desert and contains approximately 93 percent (18,735 square miles) of the land but less than 25 percent of the current population in San Bernardino County.

The proposed project area falls within the planning jurisdictions covered by the SCAG, and also the San Bernardino Associated Governments region (San Bernardino Associated Governments 2010, SCAG 2008). For SCAG planning purposes, the growth management chapter of the Regional Comprehensive Plan and Guide contains policies related to improving the regional standard of living (SCAG 2008). Policies that are relevant to assessing how the proposed project would influence the region's standard of living, regional quality of life, and goals to provide social, political, and cultural equity are reproduced in their entirety below (SCAG 2008).

Regional Standard of Living

3.05 Encourage patterns of urban development and land use which reduce costs on infrastructure construction and make better use of existing facilities.

3.09 Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.

3.10 Support local jurisdictions' efforts to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

Regional Quality of Life

3.11 Support provisions and incentives created by local jurisdictions to attract housing growth in job-rich sub-regions and job growth in housing-rich sub-regions.

3.13 Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.

3.14 Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.

Social, Political, and Cultural Equity

3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

Clark County

The Clark County Comprehensive Plan outlines standards and policies for unincorporated territory within Clark County, Nevada (Clark County 2006a). This plan covers the Las Vegas Valley Community District Area and four Rural Planning Areas (Northeast, Northwest, South, and Laughlin). Most of the proposed project would be within the South County Rural Planning Area (Goodsprings, the Town of Jean, the Town of Primm, Ripley [Sandy Valley], and Searchlight). This planning area's population is approximately 3,950 (Clark County 2006a). The EITP would also lie

within the Boulder City Annexation area, which is within the Las Vegas Valley Community District Area. The population of Boulder City itself is 15,367 (Clark County 2006a), but this does not represent the population within the Boulder City Annexation area.

Boulder City

The Boulder City Master Plan includes goals, policies, and programs used in making land use decisions for the future of Boulder City, Nevada (Boulder City 2003).

3.13.3 Impact Analysis

This section defines the methodology used to evaluate impacts on socioeconomic conditions, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.13.4.

3.13.3.1 NEPA Impact Criteria

The following NEPA analysis determines whether direct or indirect effects on socioeconomic conditions would result from the proposed project and explains the significance of those effects in the proposed project area (40 CFR 1502.16). Although NEPA does not provide specific thresholds of significance for socioeconomic impact assessment, *significance*, as defined by Council on Environmental Quality regulations, requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). In addition, 40 CFR 1508.8(b) states that indirect effects may include those that are growth-inducing and those that are related to induced changes in the pattern of land use, population density, or growth rate. In the following analysis, impacts are describes in proportion to their significance (40 CFR 1502.2[b]). To facilitate the comparison of alternatives, the significance of environmental changes is also described in terms of temporal scale, spatial extent, and intensity.

Under NEPA, the proposed project would affect socioeconomic conditions if it would:

a. Affect regional economies by causing changes in expenditures for goods and services and infrastructure spending or aggregate short-term or long-term impacts on incomes within the project area;

b. Cause aggregate short-term or long-term impacts on employment by increasing or decreasing the employment level within the project area;

c. Result in disproportionately high and adverse impacts on minority or low-income populations; or

d. Result in both short- and long-term impacts to levels of tourism within the study area.

3.13.3.2 CEQA Impact Criteria

CEQA Guidelines Section 15131(a) states that "economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from the Final Decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes." In addition, CEQA Guidelines Section 15131 states, "Economic or social information may be included in an EIR, or may be presented in whatever form the agency desires," and Section 15131 (b) states, "Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant."

Under CEQA, the EITP would have a significant impact if it would:

a. Substantially change the current and projected population level of the study area or induce substantial population growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);

b. Increase demand for permanent and temporary housing resources that could not be absorbed by the existing housing stock (i.e., increase the demand for new housing); or

c. Displace a substantial number of existing residences within the community, necessitating the construction of replacement housing elsewhere.

3.13.3.3 Methodology

The following analysis uses baseline conditions established in Section 3.13.1 and evaluates the potential for impacts associated with the EITP and alternatives. Construction and operation activities associated with the EITP and alternatives were identified based on the PEA provided by the applicant. Impacts were analyzed to determine whether the proposed project would significantly affect socioeconomic resources through an evaluation of the context and intensity of potential changes that would be introduced by the proposed project.

3.13.3.4 Applicant Proposed Measures

The applicant has not included any applicant proposed measures (APMs) related to socioeconomics, population and housing, or environmental justice for the EITP.

3.13.3.5 Proposed Project / Proposed Action

The EITP would require approximately 190 workers (SCE 2009), about 34 of which would be local. The proposed project would take about 18 months to complete. No new employment would be created by operation of the proposed project because it primarily would involve the replacement of an existing transmission line. Construction of the EITP and alternatives is not anticipated to induce substantial population growth (Section 6.3, "Growth-Inducing Effects") or result in impacts on population and housing. As shown in Tables 3.13-4 and 3.13-7, a considerable construction workforce is available within the proposed project region. The applicant states that work crews would commute daily from Boulder City, the Las Vegas area, or San Bernardino County and temporarily need accommodations, which are widely available in the area. Most EITP construction workers are expected to originate from the regional labor pool and would not generate a permanent increase in population level or result in a decrease in permanent housing availability.

Regional Economy

Construction

The construction phase is anticipated to have a short-term beneficial impact on the region's economy. EITP construction spending would be beneficial to the regional economy, as it would contribute to increased expenditures on goods and services in an area that has been significantly affected by the recent economic decline (Section 3.13.1.1). As a large-scale transmission and telecommunication line infrastructure project, the EITP would also provide jobs and tax revenue to local communities. EITP materials and equipment would be sourced locally or regionally wherever possible, which would also provide benefit to the local economy.

Operation & Maintenance

During EITP operation, direct spending associated with the permanent workforce and the transmission line's annual operational and maintenance expenditures are expected to have a negligible impact on the local economy.

Operational and maintenance expenditures, payroll, and wages are expected to be similar to those associated with operation of the existing lines currently operating between Eldorado and Ivanpah.

Regional Employment Levels

Construction

The EITP is expected to have a short-term beneficial impact on the region's economy, labor force, and employment opportunities. The number of construction workers required is small relative to the available work force and unemployment is high (Tables 3.13-4 and 3.13-7), so most workers would come from the local area or surrounding region. Few if any workers would relocate to the area. Construction activities would also benefit associated regional industries, such as manufacturers of construction materials and equipment.

By applying a local hiring estimate of 18 percent (as described in the applicant's response to data gaps), it can be approximated that 34 direct local jobs could be generated within the local economy during construction of the EITP. The workforce that would temporarily migrate to the area would stimulate spending in the region through per diem spending on food, lodging, gas, and entertainment that would temporarily benefit communities near the proposed project. In addition, direct spending by construction workers on consumables, supplies, and equipment would also have a positive short-term impact on the regional and local economies.

Operation and Maintenance

The permanent operational staff would have a negligible impact on the regional labor force as it is expected that the total number of permanent jobs created would be similar to the jobs required to operate the current transmission lines in operation between Eldorado and Ivanpah substations. No permanent staff would be required to relocate to the area for proposed project operation.

Environmental Justice Considerations

Based on the EITP design and the location of the majority of the transmission and telecommunication lines parallel to an existing ROW, it is unlikely that the construction and operation of the EITP would have a disproportionately high, adverse impact on minority populations in the vicinity. Three census tracts in the vicinity of the EITP corridor comprise low-income populations more than double the county average (see Table 3.13-9); however, the only potential impacts that would affect these populations include the short-term, minor increases in noise and traffic associated with construction; therefore, no disproportionately high, adverse impact would occur. Most of the proposed project is in an existing ROW in a rural area. The Desert Oasis Apartment Complex, which contains mobile homes as well as apartments, is within 0.01 miles of the proposed transmission line.

Construction

Construction activities associated with the proposed project would be limited to an 18-month period. As the transmission line would be constructed in a linear fashion, only sections of the transmission line corridor would be under construction at any one time, reducing the duration of potential construction impacts in any one area. The noise levels at the Desert Oasis Apartment Complex would increase for the 2.5 weeks that construction would occur in this area. Noise impacts would be temporary and less than significant. Changes to visual resources resulting from the installation of taller, more visible transmission towers in this area would be minor, localized, and long term because the visual landscape already includes several other transmission lines.

Operation and Maintenance

Operation of the EITP would comprise servicing and maintaining transmission line components on an annual and as-needed basis. Similar to current procedures, these activities would be short term and conducted in the immediate vicinity of the transmission line; therefore, minority and low-income populations would not experience disproportionately high, adverse impacts.

Tourism

Construction

Local tourist destinations in the construction area include the Primm Valley Golf Course and Ivanpah Dry Lake as well as numerous casinos in and around the ~~town~~Town of Primm. Noise modeling confirmed that there would not be any significant construction noise impacts at either of these locations. This is discussed further in Section 3.10, "Noise." Nuisance dust and noise from construction would have a negligible, localized, and short term impact that would be limited to daytime hours. Additional discussion of impacts on recreational resources is provided in Section 3.12, "Recreation." Construction crews would lodge in local accommodations, which would have a nominal beneficial impact on tourism in the area.

Operation and Maintenance

Operation and maintenance of the EITP would not adversely impact local tourism but would provide benefits by indirectly supporting regional tourism through facilitating transmission of renewable energy to meet current and future energy demands in California and increasing the use of renewable energy in California (Chapter 1, "Purpose and Need").

NEPA Summary

There would be a negligible, short-term, beneficial impact on the region's economy during construction and a negligible impact on area incomes during operation of the EITP. In addition, the proposed project would have a localized, negligible, short-term, beneficial impact on the region's labor force and employment during construction and a negligible impact on labor during operations. Impacts on minority and low-income populations would be negligible, as would impacts on the tourism industry.

CEQA Significance Determinations

NO IMPACT. Induced population growth. The proposed project would have growth-inducing potential if it fostered growth or a concentration of population above what is assumed in local and regional land use plans or in projections of regional planning authorities. Construction of the EITP would temporarily require approximately 156 non-local construction workers for 12 to 18 months (SCE 2009), a negligible increase compared with the size of the regional population, and no impact would result. Permanent employees required for operation and maintenance activities would be similar to current levels of staffing for the existing line; therefore, no impact would result under this criterion.

NO IMPACT. Increased demand for permanent and temporary housing. Construction, operation, and maintenance of the EITP would not require the construction of additional housing. Some workers would be hired from the existing labor force in the proposed project area, and adequate accommodations exist in the proposed project area to house the migratory workers needing temporary housing during construction. For example, the Town of Primm alone currently has 2,579 hotel rooms, with many more available in Las Vegas; this capacity would be sufficient to accommodate all construction workers, if needed. The EITP construction would not substantially increase the demand for housing or directly or indirectly induce population growth in the area. The small permanent workforce for operation and maintenance activities would be similar to the workforce needed for current operation and maintenance procedures and no new housing would be required; therefore, there would be no impacts under this criterion.

NO IMPACT. Displace existing residences. The EITP construction activities would occur at various locations along the transmission line routes over an approximately 18-month period. Construction of the EITP would not displace existing housing or people, or necessitate relocation or the construction of replacement housing elsewhere. Similarly, operation and maintenance activities would not displace existing residences. Therefore, there would be no impact under this criterion.

3.13.3.6 No Project / No Action Alternative

The No Project Alternative assumes that the existing transmission line system would continue to be operational at its maximum feasible capacity and that additional energy production would be provided to the market from other sources. Under the No Project Alternative, the proposed project would not be constructed and there would be no changes to socioeconomic conditions in the proposed project area. Therefore, implementation of the No Project Alternative would result in no impact.

In addition, based on current growth projections for the region, electricity demands may eventually exceed the applicant's ability to meet that demand if another means of increasing the electrical capacity in the area is not instituted. If electricity demands in the region cannot be met in the future, this could result in constraints to projected regional growth and development.

3.13.3.7 Transmission Alternative Route A

Transmission Alternative Route A would bypass a segment of the proposed project route that runs north and south near MP 2 along a line parallel to the Los Angeles Department of Water and Power transmission corridor (Figure 1-1). Socioeconomic conditions are similar in this area to those discussed for the proposed project route. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high, or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.

3.13.3.8 Transmission Alternative Route B

Transmission Alternative Route B would require 5.3 miles of new transmission line ROW, of which 0.83 miles would be constructed within the City of Boulder. Socioeconomic conditions are similar in this area to those associated with the proposed project, and construction and operation of this alternative within the City of Boulder would not be expected to result in any additional adverse socioeconomic impacts or result in project-induced growth. This alternative would not induce substantial population growth, displace existing residents or housing, result in disproportionately high, or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.

3.13.3.9 Transmission Alternative Route C

Transmission Alternative Route C would require 5.3 miles of new 130-foot ROW north of the Ivanpah Dry Lake and Primm, Nevada. Socioeconomic conditions and impacts resulting from this alternative would be similar to those associated with the proposed project. Transmission Alternative Route C would circle northwest around the Town of Primm. The existing setting for Transmission Line Alternative C is the same as described for the proposed transmission route except for the distance from the Desert Oasis Apartment Complex, which is 0.67 miles from Transmission Alternative Route C, and impacts on this complex would be less than impacts from the proposed project. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high, or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.

3.13.3.10 Transmission Alternative Route D and Subalternative E

Transmission Alternative Route D and Subalternative E would match the footprint of an existing transmission 500-kV ROW to the extent possible across the Ivanpah Dry Lake. Ivanpah Dry Lake is a popular recreation destination for several kinds of recreational activities, including long-distance archery, kite buggying, and kite demonstrations. Use of Ivanpah Dry Lake for these activities contributes to the local economy. Reducing the transmission line footprint across the Ivanpah Dry Lake would lessen EITP's impact on recreation, but any impact on the local economy would

be negligible. The socioeconomic conditions and impacts resulting from these alternatives would be similar to those for Transmission Alternative Route C. These alternatives would not induce substantial population growth, displace existing residents or housing, necessitate the construction of housing, or result in disproportionately high or adverse impacts on minority or low-income populations, and no impacts would result.

3.13.3.11 Telecommunication Alternative (Golf Course)

The Golf Course Telecommunication Alternative includes underground construction to reduce visual impacts of the telecommunication line. The proposed over-ground and underground wiring from the town of Nipton to the proposed Ivanpah Substation would parallel the northern boundary of the Mojave National Preserve. This alternative would incur increased costs associated with underground construction, which requires a longer construction period. The applicant would coordinate with the owners of the Primm Golf Course to minimize disruption to golf operations. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high, or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.

3.13.3.12 Telecommunication Alternative (Mountain Pass)

The Mountain Pass Telecommunication Alternative would locate portions of the telecommunication line underground and out of line-of-sight from Nipton to Mountain Pass and the proposed Ivanpah Substation. In general, socioeconomic impacts would be similar to those of the proposed project. This alternative would not induce substantial population growth, displace existing residents or housing, result in disproportionately high or adverse impacts on minority and low-income populations, or necessitate the construction of housing, and no impacts would result.

3.13.4 Mitigation Measures

No mitigation measures are required to reduce impacts on socioeconomic conditions.

3.13.5 Whole of the Action / Cumulative Action

Information on socioeconomics related to the ISEGS project is summarized below. The setting for the ISEGS project is described, followed by summaries of methodologies used and the impact conclusions presented in the CEC's Final Staff Assessment (FSA), FSA Addendum, and Final Decision and the BLM's FEIS. Required conditions of certification and mitigation measures are listed. Some differences between the ISEGS and EITP are noted.

~~in the ISEGS Final Staff Assessment / Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

3.13.5.1 ISEGS Setting

The ISEGS project would be constructed in the Ivanpah Basin of San Bernardino County, California, 4.5 miles southwest of Primm, Nevada, adjacent to the Ivanpah Dry Lake. The ISEGS project is approximately 3,~~672~~564 acres in three sectional portions on a contiguous property in an area with socioeconomic conditions similar to those described above in Section 3.13.1.1 for the EITP. The ISEGS project, however, would be located only in California~~. It~~ and would not extend into Nevada.

Employment Characteristics and Fiscal Revenue

The metropolitan statistical areas for Riverside-San Bernardino-Ontario and Las Vegas-Paradise were analyzed for the ISEGS project. The analysis concluded that the largest employment sectors of the ISEGS study area were construction and services. ~~For the FSA/DEIS, ISEGS provided available~~Available fiscal data for San Bernardino County and the City of Las Vegas ~~to describe~~described revenues and expenditures for fiscal year 2006. An analysis of the impact on public services was also provided including police protection, schools, and hospitals. The ISEGS analysis for these services is addressed in Section 3.11, "Public Services and Utilities."

Applicable Laws, Regulations, and Standards

The same laws, regulations, and standards would apply to both the EITP and ISEGS except ISEGS would be developed solely within California and on BLM land. ~~O~~, so only federal and California regulations (listed above under Section 3.13.2) would apply.

3.13.5.2 ISEGS Methodology

~~In the ISEGS FSA/DEIS, BLM and CEC staff reported on existing conditions and assessed potential impacts to socioeconomic resources. Using CEQA Guidelines, Appendix G, this analysis sought to determine whether the project would have a significant effect. The following impact criteria were used~~

CEC FSA Methodology

For the CEQA analysis, the socioeconomic impact assessment for the CEC's and BLM's combined FSA/DEIS for ISEGS was limited to impacts that could be considered direct effects on the environment, such as changes to population and housing, and that were separate from strictly economic impacts, such as a loss of revenue. Based on a review of recent environmental assessment documents prepared for the BLM and on the CEQA Guidelines, Appendix G, the thresholds below were used for analysis of socioeconomic impacts under both NEPA and CEQA. A project may have a significant effect on socioeconomics if it would:

- Induce substantial population growth in an area, either directly or indirectly;
- Displace substantial numbers of people and/or existing housing, necessitating the construction of replacement housing elsewhere;
- Cause a substantial change in revenue for local businesses or government agencies; or
- Adversely impact acceptable levels of service for law enforcement, schools, and hospitals.

Note: The EITP impact criteria (Section 3.13.3.5) did not address changes in local revenue structures that could result from construction, operation, and maintenance of the EITP.

BLM FEIS Methodology

Because NEPA provides no specific thresholds of significance for socioeconomics impact assessment, significance of impacts under NEPA was assessed under the same criteria in BLM's FEIS as discussed in the original combined CEC/BLM FSA/DEIS (above).

3.13.5.3 ISEGS Impacts

~~The BLM and CEC determined that construction, operation, and decommissioning activities of the ISEGS project could have a beneficial impact to tax revenues. The two agencies published the impacts described below related to socioeconomics for the ISEGS project.~~

The ISEGS project would not result in significant adverse direct or indirect socioeconomics impacts with respect to either CEQA or NEPA. In addition, the ISEGS would not contribute to a cumulative socioeconomic impact on the area's population, employment, housing, police, schools, or hospitals because the ISEGS's construction and operation workforce currently resides in the regional or local labor market area and construction would be short term. Gross public benefits from the ISEGS project include capital costs, construction and operation payroll, and property and sales taxes. Furthermore, the construction and operation of the proposed ISEGS would not result in any disproportionate impacts to low-income or minority populations.

CEC FSA Impact Conclusions

Construction Impacts

The ~~two-year~~40-month ISEGS ~~project~~construction schedule anticipates a daily construction workforce of approximately 474 workers with peaks of 959 workers, contingent on the type of work and time period. Workers would commute from their respective communities, limiting the need for immigration as a result of project-related construction activities.

Operation Impacts

Maintenance workers would commute approximately 1 hour. Workers identified for the ISEGS project would come from the existing construction population of the local available labor force. No significant impacts were determined to result for the operations of the project.

CEC staff anticipates the generation of approximately $2.2 million per year from assessed property tax values, with allocations of these funds in San Bernardino County, which has an annual operational and maintenance budget of $340,500.

Closure and Decommissioning Impacts

The ISEGS project is scheduled to occur in a phased sequential order across the three segmented units at different locations. The workforce that has been proposed for use in closure and decommissioning activities will be drawn from the local labor pool, with residence in the surrounding areas. Because work from the project would be temporary, a determination was made of no significant impact on the study area population and employment base.

BLM FEIS Impact Conclusions

Similar to the impacts discussed in the combined CEC/BLM FSA/DEIS, BLM's FEIS concludes that no adverse socioeconomic impacts would occur as a result of the construction or operation of ISEGS. ISEGS would not cause an adverse direct, indirect, or cumulative impact on population, employment, housing, public finance, local economies, or public services. Rather, ISEGS would benefit the two-county study area (San Bernardino County, California, and Clark County, Nevada) and the local project vicinity in terms of an increase in local expenditures, payrolls, and taxation during construction and operation of the facility, thus having a positive effect on the local and regional economy.

3.13.5.4 ISEGS Conditions of Certificate / Mitigation Measures

The CEC and BLM ~~and CEC~~ determined that there would be no significant impact on socioeconomic resources caused by ISEGS. No mitigation measures were imposed by the CEC or the BLM for the ISEGS project.

3.13.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for socioeconomics, population and housing, and environmental justice were based on similar significance criteria that evaluated the extent to which the proposed projects would change local population levels, displace people or existing housing, or affect regional economies and

employment. The analyses for both projects also evaluated effects on minority and low-income populations, but the ISEGS FSA/EIS did not list specific impact criteria to address these effects. In addition, Section 6.9, "Socioeconomics and Environmental Justice," in the ISEGS FSA/EIS evaluated the extent to which the project would adversely impact acceptable levels of service for law enforcement, schools, and hospitals. In the EITP EIR/EIS, this evaluation was documented in Section 3.11, "Public Services and Utilities."

Construction of the EITP would require approximately 156 non-local construction workers for 12 to 18 months. Estimating that 18 percent of the hiring would be local, approximately 34 local jobs could be generated during construction. Three census tracts in the vicinity of the proposed EITP corridor comprise low-income populations, but the only impacts affecting these populations would be short-term, minor increases in noise and traffic associated with construction activities. Construction of the ISEGS project would require approximately 474 temporary workers, with peak requirements of up to 959 workers, contingent on the type of work and time period. Workers for the ISEGS project would come from the local labor force. No minority or low-income communities are located within or adjacent to the proposed ISEGS project areas.

The CPUC concluded that construction, operation, and maintenance of the EITP would have no impact on socioeconomics, population and housing, or environmental justice (see "CEQA Significance Determinations" in Section 3.13.3.5, "Proposed Project / Proposed Action"). The CEC concluded that there would be no significant impact on the study area population and employment base (see "CEC's FSA Impact Conclusions" in Section 3.13.5.3, "ISEGS Impacts"). The BLM concluded that impacts from construction, operation, and maintenance of the EITP would be beneficial to the region's economy. The BLM also concluded that impacts on minority and low-income populations would be negligible (see "NEPA Summary" in Section 3.13.3.5, "Proposed Project / Proposed Action"). Similarly, the BLM concluded that the ISEGS project would have beneficial socioeconomic impacts, no adverse socioeconomic impacts, and no impact on minority or low-income communities (see "BLM's FEIS Impact Conclusions," Section 3.13.5.3, "ISEGS Impacts").

Together, the two projects would have no adverse impact on socioeconomics, population and housing, or environmental justice. The projects would have short-term beneficial impacts on the local and regional economies. See Section 5.3.12.4, "Cumulative Impact Analysis," for a discussion of cumulative impacts.

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3.14 Traffic and Transportation

This section contains a description of the environmental setting, regulatory setting, and potential impacts associated with the construction and operation of the proposed project and alternatives with respect to traffic and transportation.

3.14.1 Environmental Setting

This section discusses existing transportation and traffic near the proposed project and alternatives. The proposed project is located in primarily undeveloped and sparsely populated areas within a limited transportation network primarily serviced by Interstate 15 (I-15), which spans California and Nevada. Construction and maintenance vehicles would use I-15 and the surrounding transportation network. Refer to Figure 1-1 for a depiction of the transportation network described below.

3.14.1.1 Regional Setting

Interstate 15

The proposed project would cross I-15 near milepost (MP) 29 at the California/Nevada border. The proposed project would be serviced by I-15, a major north–south divided freeway through San Bernardino County in California and Clark County in Nevada. This highway is a major thoroughfare between Southern California and Las Vegas, Nevada. In Nevada, I-15 serves as the major transportation route between the California-Nevada border (MP 28) and the Las Vegas metropolitan area. This stretch of I-15 varies in width from four to six lanes and has posted speeds of 65 and 75 miles per hour.

State Route 164

State Route (SR) 164 is a state highway in southern Clark County, Nevada, located approximately 5 miles south of the proposed Ivanpah Substation. The route, which is called Nipton Road in California, connects the small unincorporated area of Nipton, California, to U.S. Route 95 in Nevada and I-15 south of Primm, Nevada. The route was formerly designated SR 68.

State Routes 161 and 604

SR 161 runs east–west along Goodsprings Road. It connects Ripley to I-15 at Jean, 5.5 miles from MP 18. SR 604 (Las Vegas Boulevard) runs south from Las Vegas parallel to I-15.

US 95

US 95 in Nevada is approximately 3 miles east of the proposed project (MP 0) and runs north–south. It is a divided highway between Laughlin Junction and Boulder City.

Union Pacific Railroad

In Nevada, I-15 is roughly paralleled by SR 604 (Las Vegas Boulevard) and the Union Pacific Railroad (UPRR) corridor. The UPRR has an approximately 100-foot right-of-way (ROW) with a single track alignment. It runs south from the urbanized area of Las Vegas, roughly paralleling the I-15 corridor, to the Nevada/California state line, where it turns south and runs through Nipton, California. The proposed project crosses the UPRR between MPs 26 and 27. Currently, this corridor is heavily used for freight hauling (Clark County 2008).

Jean Airport

The Jean Airport is located approximately 5 miles north of the proposed project, nearest MP 20. Also known as Jean Sport Aviation Center, it is a public airport mainly used for sports aviation such as gliders and sky diving (AirNav 2009). Jean Airport is owned and operated by the Clark County Department of Aviation.

Southern Nevada Supplemental Airport

~~The Federal Aviation Administration (FAA) and the BLM are currently preparing an EIS for a proposed Southern Nevada Supplemental Airport (SNSA) to be constructed on approximately 6,000 acres just south of Jean, Nevada (CCDOA 2009). This site is within the 17,000 acre Ivanpah Airport Environs Overlay District, conditionally established per Section (2)(b)(1) of the Ivanpah Valley Airport Public Lands Act of 2000 (Public Law 106–362) and the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Public Law 107–282), pending completion of the EIR, which is intended to ensure compatible land use within airport accident hazard and noise exposure areas by providing for a range of appropriate uses and by prohibiting development of inappropriate or incompatible uses. As currently planned, the proposed SNSA would provide sufficient airport capacity to accommodate future aircraft operations and aviation passenger demand in the Las Vegas Metropolitan Area (CCDOA 2009). The proposed project would be located approximately 0.5 miles (MP 26) from the nearest proposed runway; however, the proposed SNSA is not expected to be operational until 2020—after the scheduled completion of the EITP, which is projected to be operational in 2013.~~

The proposed SNSA airport, also known as the Ivanpah Valley Airport, would be located south of Jean, Nevada, northwest of the EITP. If approved, the proposed SNSA boundary would be located within 0.5 miles (2,640 feet) north of MP 26 of the EITP 230-kV transmission line. Additionally, the EITP would cross the Ivanpah Airport Environs Overlay (Figure 3.9-1). Transmission Alternative Route C would be located closer to the SNSA boundary than would the proposed project, and Transmission Alternative Route D and Subalternative E would be located farther away. The exact locations of SNSA components, such as runways and navigational equipment, are included in the airport layout plan on file with the FAA (CCDOA 2009); however, the proposed SNSA project and its EIS process are currently on hold (CCDOA 2010).

Public Transportation and Bicycle Paths

No public transit exists in the vicinity of the proposed project. Amtrak serves the corridor via bus only, with service between Las Vegas and Los Angeles. Many private bus companies operate on demand for Primm Valley Golf Club customers, but no established regular schedule exists. There are no bicycle lanes in the proposed project area (SCE 2009).

3.14.1.2 Local Setting

Major Transportation Routes

In total, the proposed project crosses two major and three smaller transportation routes between the Eldorado and Ivanpah substations. Table 3.14-1 lists the location of these intersections by MP.

Table 3.14-1 Transportation Intersections Crossing the Proposed Route

Location (MP)	Intersection
26/27	Union Pacific Railroad
28/29	Lotto Store Road
28/29	East Primm Boulevard
28/29	Fashion Outlet Way
29	I-15 at California/Nevada border

Source: Google Earth 2009

Existing Traffic Volumes

Tables 3.14-2a and 3.14-2b list existing traffic volumes for the locations where the proposed project would cross major transportation routes. In California, volumes of traffic are measured in terms of peak hour estimates for actual vehicles and annual average daily traffic (AADT) for both lanes of travel (ahead [north and west] and back [south and east]).

Table 3.14-2a Traffic Volumes for Major Transportation Routes in Nevada in 2008

Description	AADT
I-15 at the Nevada/California state line	38,000
I-15, 1.5 miles north of SR-604 (Apex Interchange)	24,000
SR-161, Goodsprings Road, 1 mile west of the southbound off-ramp of the Jean Interchange exit (Exit 12)	2,000
US 95, 0.7 miles north of SR-164 (Nipton Road)	8,600
SR 164, Nipton Road, 1.1 miles west of US 95	690

Source: NDOT 2008
Key:
AADT = annual average daily traffic

Table 3.14-2b Traffic Volumes for Major Transportation Routes in California in 2008

Traffic Count Location	Peak Hour (south of count location)	AADT (south of count location)	Peak Hour (north of count location)	AADT (north of count location)
I-15 at the Cima Road interchange	5,000	36,000	5,000	36,000
I-15 at Nipton Road	5,000	36,000	5,100	36,500
1-15 at the Yates Well Road interchange	5,100	36,500	5,100	37,000

Source: Caltrans 2008
Key:
AADT = annual average daily traffic

Traffic flow can be calculated using Level of Service (LOS) designations for transportation routes. LOS is a qualitative measure used to describe operational conditions within a traffic system. LOS quantifies the congestion level on a particular roadway or intersection in terms of speed, travel time, and delay. The 2000 Highway Capacity Manual defines LOS designations for roadways or intersections (LOS A to LOS F). LOS A designates the best operating conditions and LOS F the worst. A general description of service levels for various types of facilities is shown in Table 3.14-3.

Table 3.14-3 Level of Service Definitions

Facility Type	Uninterrupted Flow	Interrupted Flow
	Freeways Multi-lane highways Two-lane highways Urban streets	Signalized intersections Unsignalized intersections – Two-way stop control – All-way stop control
Level of Service		
A	Free-flow	Very low delay
B	Stable flow; presence of other users noticeable	Low delay
C	Stable flow; comfort and convenience starts to decline	Acceptable delay
D	High density stable flow	Tolerable delay
E	Unstable flow	Limit of acceptable delay
F	Forced or breakdown flow	Unacceptable delay

Source: TRB 2000

Table 3.14-4 lists the LOSs for the surrounding transportation network in the proposed project area rated LOS D or below.

Table 3.14-4 LOS D or Below for Proposed Project Transportation Network

Caltrans Post Mile/Project MP	LOS	ADT
SBd-15-186.24 / MP 29	D	38,000

Source: Green 2009

Although I-15 operates at LOS C or better most days of the week (Monday through Thursday), northbound 1-15 experiences increased traffic volumes on Friday afternoons because of commuter and tourist traffic from California to Las Vegas, Nevada. On most days, as shown in Tables 3.14-2a and b, I-15 experiences an average daily traffic volume of approximately 38,000 trips. However, on Fridays from approximately noon to 10 p.m., northbound 1-15 experiences an hourly average that ranges from approximately 1,700 to 2,000 trips and operates at LOS D (Green 2009).

Proposed Project Transportation Setting

Transmission Line

The proposed transmission line would start at the existing Eldorado Substation and end at the future Ivanpah Substation location. Seven temporary construction yards and 16 temporary guard structures for highway/road crossings would be required during the construction phase. These crossing locations are the most likely locations for potential impacts to traffic and transportation associated with construction traffic traveling to and from construction yards and the project route. Tables 3.14-5 and 3.14-6 list the location of the project construction yards and guard structures.

Table 3-14.5 Proposed Construction Yard Locations

No.	Location	MP	Distance to ROW (miles)	Area[a] (acres)
1	Eldorado Substation, NV	0	0	9.8
2	Jean, NV	15	11.5	13.6
3	Generating station yard, NV	27	0.4	16.5
4	Primm Valley Casino vacant lot, NV	28	0.1	28.3
5	Whiskey Pete's Casino vacant lot, NV	28	1.1	2.4
6	BrightSource generating station yard, CA[b]	35	0	10+
7	Nipton, CA[c]	N/A	4.7	2.5

Source: SCE 2009
Notes:
[a] Approximate areas based on current design.
[b] Only Construction Yard #6 is located on public (BLM) land.
[c] Construction Yard #7 is proposed for tower retrofit activities.
Key:
MP = milepost
ROW = right-of-way

Table 3.14-6 Proposed Guard Structure Locations

GS #	Location of Guard Structure	Type of Guard Structure
1	West side distribution line between MPs 32 and 33	H-frame
2	East side distribution line between MPs 32 and 33	H-frame
3	South side of Dirt Road near MP 33	Bucket truck
4	North side of Dirt Road, near MP 33, crossing over distribution line	Bucket truck
5	Southbound I-15, west side of highway, near MP 29, south of state line	H-frame w/net

Table 3.14-6 Proposed Guard Structure Locations

GS #	Location of Guard Structure	Type of Guard Structure
6	Southbound I-15 in center median, near MP 29, south of state line	H-frame w/net
7	Northbound I-15 in center median, near MP 29, south of state line	H-frame w/net
8	Northbound I-15, east side of highway, near MP 29, south of state line	H-frame w/net
9	Southwest side of Lotto Store Road, between MPs 28 and 29, at southern edge of outlet mall	H-frame
10	Northeast side of Lotto Store Road, between MPs 28 and 29, at southern edge of outlet mall	H-frame
11	Southwest side of Fashion Outlet Way, between MPs 28 and 29, at eastern edge of outlet mall	H-frame
12	Northeast side of Fashion Outlet Way, between MPs 28 and 29, at eastern edge of outlet mall	H-frame
13	South side of East Primm Boulevard between MPs 28 and 29	H-frame
14	North side of East Primm Boulevard between MPs 28 and 29	H-frame
15	West side of UPRR between MPs 26 and 27	H-frame
16	East side of UPRR between MPs 26 and 27	H-frame

Source: SCE 2009
Key:
GS = Guard structure
MP = Milepost
UPRR = Union Pacific Railroad

Each yard would be used as a reporting location for workers and for vehicle and equipment parking and material storage. The maximum number of workers reporting to any one yard is not expected to exceed approximately 100 workers at any one time. At peak construction, most of the vehicles could occupy the yards listed. Approximately 80 private commuting vehicles would also be parked at the yard. Crews would load materials onto work trucks and drive to the line position being worked. At the end of the day, they would return to the yard in their work vehicles and depart in their private vehicles.

For highway crossings, the applicant would work closely with the applicable jurisdiction to secure the necessary permits to string conductor across the applicable infrastructure. For major roadway crossings, typically one of the following four methods is employed to protect the public:

- Erection of a highway net guard structure system
- Detour of all traffic off a highway at the crossing position
- Implementation of a controlled continuous traffic break while stringing operations are performed
- Strategic placement of special line trucks with extension booms on the highway deck

This analysis assumes that temporary net guard structures would be implemented as the least disruptive to transportation and traffic.

Substations

Eldorado Substation

The Eldorado Substation is an existing substation. Access is provided by US 95 to the east and by SR 165, which feeds into US 95 from the east. The setting is rural and undeveloped.

Ivanpah Substation

The Ivanpah Substation would be a new substation at the south end of the proposed transmission line. Access is provided by I-15 to the east. The closest residences to the proposed Ivanpah Substation site are those at the Desert Oasis Apartment Complex, roughly 6.7 miles to the northeast. Traffic from the Primm Valley Golf Club could use the same I-15 onramps that construction vehicles would use.

3.14.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of federal, state, and local laws, regulations, and standards that govern traffic and transportation in the project area.

3.14.2.1 Federal

BLM Managed Lands

On federal lands managed by the BLM, motorized routes are designated for public use through the managing agency's land use plan or motorized transportation plan. Most of these routes are unmaintained. A few major arterial roadways are maintained and/or paved by the managing agency. Most routes are lightly used and do not have specific policies or regulations governing their use. Additional motorized routes through federal lands may be designated by BLM for commercial or other authorized use or for administrative agency use. These routes are subject to maintenance and other provisions based on the level of use, public safety considerations, and environmental impacts. Non-motorized transportation routes are also designated on public lands. These include equestrian and/or hiking trails that are a primary access means to specific local destinations and/or that are long-distance non-motorized trekking routes.

3.14.2.2 State

California Department of Transportation

The use of California state highways for other than normal transportation purposes may require written authorization from the Department of Transportation (Caltrans). As the department responsible for protecting the public's investment in the state highway system, Caltrans reviews all requests from utility companies desiring to conduct various activities within the ROW. Requests for the ROW ingress are prepared on a Standard Encroachment Permit, which the applicant would obtain (Caltrans 2009).

Nevada Department of Transportation

The Nevada Department of Transportation (NDOT) is responsible for design, construction, maintenance, and operation of the Nevada State Highway System, as well as the portion of the National and Interstate Highway System within the state's boundaries (NDOT 2009).

3.14.2.3 Regional and Local

The San Bernardino County General Plan, Clark County Comprehensive Plan, and Boulder City, Nevada, Master Plan were reviewed for regional and local applicable laws, regulations, and standards in terms of traffic or transportation policies; however, none of these entities' have policies that would be affected by the project. Additionally, the EITP would be constructed in BLM-designated utility corridors, with the exception of a small segment in the Boulder City Conservation Easement as depicted in Figure 3.9-3; therefore, policies in local general and master plans would not be applicable.

3.14.3 Impact Analysis

This section defines the methodology used to evaluate impacts for transportation and traffic, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.14.4.

3.14.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to transportation and traffic would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by Council on Environmental Quality regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

3.14.3.2 CEQA Impact Significance Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system;

b. Exceed, either individually or cumulatively, an LOS standard established by the local county congestion management agency;

c. Result in inadequate emergency access;

d. Result in inadequate parking capacity;

e. Conflict with adopted policies, plans, or programs supporting alternative transportation;

f. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks; or

g. Result in the closure of a major roadway (arterial or collector classification) to through traffic as a result of construction activities with no suitable or alternative route available.

3.14.3.3 Methodology

Traffic volumes were collected from the Caltrans and NDOT databases for the transportation network affected by the proposed project. The 2000 Highway Capacity Manual and Caltrans Traffic Impact Study Guide were used to determine LOS values. The volume/capacity ratio was calculated and then compared with the LOS levels outlined in the Caltrans Traffic Impact Study Guide. Personal communication with Caltrans for 1-15 LOS was made on December, 8, 2009.

3.14.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to traffic and transportation:

APM TRA-1: Obtain Permits. If any work requires modifications or activities within local roadway and railroad ROWs, appropriate permits will be obtained prior to the commencement of construction activities, including any necessary local permits and encroachment permits.

APM TRA-2: Traffic Management and Control Plans. Traffic control and other management plans will be prepared where necessary to minimize project impacts on local streets and railroad operations.

APM TRA-3: Minimize Street Use. Construction activities will be designed to minimize work on, or use of, local streets.

3.14.3.5 Proposed Project / Proposed Action

Construction

During construction, traffic conditions in the proposed project area would be adversely impacted in the short term by an increase in traffic due to an influx of construction workers and the delivery of construction equipment, materials, and water to the proposed project area. Construction equipment and materials deliveries would occur throughout the construction period. Construction equipment would include trucks, vans, tractors, trailers, and dozers of various sizes. Up to 190 construction personnel and 204 vehicles would be required for the 18-month construction period. However, only a portion of this total would be used during any single construction phase. Construction equipment would be left overnight on site when feasible or, where overnight onsite storage was infeasible, at the construction yards identified in Table 3.14-5.

To reduce the effects of construction-related deliveries on transportation and traffic along I-15 and SR 164/Nipton Road, APM TRA-2 is proposed, which requires the development of a detailed Traffic Management Plan in consultation with jurisdictional agencies including Caltrans and NDOT. The Traffic Management Plan would include strategies to assure safe and effective passage of through-traffic during construction activities. Because the movement of heavy equipment and materials to various work sites has the potential to cause short-term traffic delays, such activities would occur during off-peak hours to avoid the morning and evening peak vehicular travel times on weekdays, to the extent possible (SCE 2009).

Construction would adversely impact transportation and traffic in the proposed project area where the transmission line would cross a transportation route. Proposed project construction at road crossings identified in Table 3.14-6 would adversely affect vehicle traffic flow at those locations during the construction period. The I-15 crossing at MP 29 would be the most adversely impacted transportation resource, but the H-frame guard structure with net method would be preferred over lane closures. However, in some cases, road crossings could result in detours or periods of one-lane traffic that would cause traffic delays. Detours or road closures could moderately impact traffic flows in localized segments within the transportation network.

To reduce potential congestion associated with construction across transportation routes, the applicant has proposed APM TRA-1, which requires acquisition of encroachment permits and other local permits for work performed within local roadway and railroad ROWs. This APM would require approval from the appropriate jurisdiction (Caltrans or NDOT) and consultation and best management practices (BMPs). Lane closures, if needed, would be identified prior to construction. Detours would be clearly identified and motorists would be adequately notified. APM TRA-3 would also reduce potential adverse effects of construction traffic on local streets, since those streets would be avoided where possible. The Traffic Management Plan (APM TRA-2) would reduce effects of route crossings through implementation of BMPs such as use of flaggers, identification of detours, and communications with stakeholders. Additionally, as outlined in MM TRANS-3, prior to start of construction of the EITP, the applicant will prepare and implement a Traffic Control Plan for the project to address staggering of deliveries on I-15 during peak traffic times.

The applicant would use existing roads and designated routes on federal lands to gain access to the ROW during construction. Refer to Chapter 2 for a general description of anticipated access and maintenance road requirements. Modifications, including grading and/or widening, would be required in order to use some existing roads.

Parking for construction workers would be accommodated on the substation site, within the applicant's ROW, and/or in construction yards. No adverse impact on parking would result from construction of the proposed project.

During the construction phase of the project, helicopters might be used for installation of Tubular Steel Poles (TSPs) and overhead wires. For structures that would be located in terrain that is inaccessible by a crane, helicopters may be used for structure erection. Helicopter use is expected only in the McCullough Pass area and for line stringing. The use of helicopters for the erection of structures would be conducted in accordance with the applicant's specifications and would be similar to methods detailed in the Institute of Electrical and Electronic Engineers

publication 951-1996, Guide to the Assembly and Erection of Metal Transmission Structures, Section 9, Helicopter Methods of Construction. The use of helicopters would be limited to helicopter staging areas near construction locations considered safe locations for landing. To further reduce impacts due to helicopter use, MM TRANS-2 would be implemented. MM TRANS-2 requires the applicant to coordinate with the FAA prior to construction and operation for review and approval of any helicopter flight and safety plans. In addition, MM HAZ-2, which requires compliance with FAA recommendations upon construction of the SNSA, will help reduce potential impacts related to air traffic associated with the future airport. ~~In addition, MM HAZ-2, which involves coordination with the FAA regarding compatibility with the SNSA, will help reduce potential impacts related to air traffic associated with the future airport.~~

Operation & Maintenance

The entire proposed transmission line corridor would be patrolled every year. The yearly patrol method would alternate each year between helicopter and truck. In one year, the patrol would be by helicopter and would take approximately 1 day (8 hours) to accomplish. The next year, the patrol would be performed by truck and would take 5 days. These maintenance operations are currently ongoing and would be continued for the proposed project. Therefore, there would be no increase in air or vehicle traffic, and thus, no adverse effect to traffic and transportation during the operation and maintenance phase of the project.

However, starting approximately 15 years after the operational date, maintenance on the proposed line would be expected to increase. Depending on the level of air traffic, there could be air traffic conflicts. As a result, the applicant is required to implement MM TRANS-2, which requires coordination with the FAA regarding a Helicopter Flight Plan and Safety Plan. In addition, MM HAZ-2, which requires compliance with FAA recommendations upon construction of the SNSA, will help reduce potential impacts related to air traffic associated with the future airport. ~~In addition, MM TRANS-2 specifies that in the event that plans for the SNSA are approved, the applicant will review the plan with the FAA at least 30 days prior to the start of SNSA construction. Implementation of MM TRANS-2 would reduce the impact to minor.~~

NEPA Summary

The proposed project would result in direct minor adverse traffic impacts due to project construction access along I-15 and SR 164/Nipton Road; however, the impacts would be localized at construction yards and crossing points (MP 29) along the transmission line route and would be short term. Implementation of MM TRANS-1 would minimize potential impacts to I-15 by limiting construction activities so that lane closures did not occur during peak usage times on Fridays from noon to 10 P.M. Additionally, as outlined in MM TRANS-3, prior to start of construction of the EITP, the applicant will prepare and implement a Traffic Control Plan for the project to address staggering of deliveries on I-15 during peak traffic times.

The operation of the transmission line, substation, and telecommunication line would not result in adverse ground traffic impacts. Maintenance activities associated with substations and transmission lines would not require additional vehicles beyond those used for current operations and maintenance procedures; therefore, maintenance would not increase traffic beyond existing LOSs. Operation and maintenance activities would not result in an adverse impact on ground transportation.

Operation and maintenance would require helicopter usage; MM TRANS-2 requires the applicant, in coordination with the FAA, to develop a Helicopter Flight Plan and Safety Plan. Additionally, MM TRANS-2 specifies that ~~in the event that plans for the SNSA are approved,~~ the applicant will review the plan with the FAA and the CCDOA at least 30 days prior to the start of SNSA construction. MM TRANS-2 would reduce the project's impact on air traffic to minor.

CEQA Significance Determinations

IMPACT TRANS-1: Traffic Load and Capacity
Less than significant with mitigation

The proposed project would result in less than significant impacts on existing traffic load and capacity, as a limited number of vehicles over a short period would be used for construction. Implementation of APM TRA-1, APM TRA-2, and MM TRANS-3 would contribute to reduction of impacts associated with construction traffic. Impacts on northbound I-15 during the Friday afternoon commute would be short term and less than significant.

Use of helicopters of during construction and operations could increase the volume of air traffic in the area and potential air traffic conflicts could occur. Potential air traffic conflicts would be reduced to less than significant levels with implementation of a Helicopter Flight Plan and Safety Plan (MM TRANS-2). ~~Because plans for the SNSA have not yet been approved, it is not possible to identify how the EITP would affect the SNSA in terms of air traffic conflicts; however, MM HAZ-2 will be implemented, which would further reduce air traffic conflicts to less than significant by requiring additional consultation with the FAA regarding final project design.~~ Additionally, MM HAZ-2, which requires compliance with all FAA requirements upon construction of the SNSA, would further reduce air traffic conflicts to less than significant. For additional discussion about the SNSA, see Chapter 5, "Cumulative Scenario and Impacts."

IMPACT TRANS-2: Level of Service Standard and Lane Closures
Less than significant with mitigation

The proposed project would result in less than significant impacts on existing LOS standards as defined by Caltrans. A limited number of vehicles over a short period would be used for construction. Impacts on northbound I-15 during the Friday afternoon peak hours due to increased number of vehicles on the road would be short term and less than significant. Implementation of APMs TRA-1, TRA-2, and TRA-3 would contribute to reduction of impacts associated with construction traffic.

Though the proposed project does not include plans to close I-15 during construction, one or several lanes of I-15 may be closed to allow for pulling the transmission lines across the highway. Since I-15 experiences operating conditions at LOS D with high density stable flow and the potential for tolerable delay, lane closures during a period of LOS D could result in significant traffic circulation impacts over the short term. The severity of the short-term impact would depend on the number of lanes closed, the duration of the closure, and the LOS conditions at the time of closure. If lane closures were implemented and then sudden, unexpected LOS D conditions were to occur, it is reasonable to assume that drivers could experience significant delay along I-15. Therefore, MM TRANS-1 is required; the applicant will limit construction activities so as not to require lane closures on I-15 from noon to 10 p.m. on Fridays. In addition MM TRANS-3 will address staggering of deliveries on I-15 during peak traffic times.

IMPACT TRANS-3: Emergency Access
Less than significant without mitigation

Emergency response providers near the proposed project area would be notified in advance about the exact location of construction, road or route closure schedules, and location of potential alternate routes, as needed. Implementation of APMs TRA-1, TRA-2, and TRA-3 would contribute to reduction of impacts associated with emergency access. Work would be coordinated with local police and traffic engineers to plan appropriate access alternatives for temporary street closures and traffic disruption, if closures were required.

IMPACT TRANS-4: Result in a Change in Air Traffic Patterns
Less than significant with mitigation

While the proposed project would not impact existing air traffic, use of helicopters of during operation and maintenance procedures could interfere with air traffic associated with the future SNSA. As a result, the applicant is required to implement MM TRANS-2, which requires coordination with the FAA regarding a Helicopter Flight Plan and Safety Plan. In addition, MM TRANS-2 specifies that ~~in the event that plans for the SNSA are approved,~~ the applicant will review the plan with the FAA and the CCDOA at least 30 days prior to the start of SNSA construction. With the implementation of MM TRANS-2, potential air traffic conflicts would be reduced to less than significant levels.

NO IMPACT: Result in Inadequate Parking Capacity. The proposed project would have no impact under this criterion because all parking would be contained within existing substations, applicant ROW, and/or construction yards.

NO IMPACT: Conflict with Adopted Policies, Plans, or Programs Supporting Alternative Transportation. The proposed project would have no impact under this criterion because no public transportation exists within the transportation network.

NO IMPACT: Result in the Closure of a Major Roadway to Through Traffic as a Result Of Construction Activities with No Suitable or Alternative Route Available. The proposed project would have no impact under this criterion because the proposed project would not cause the closure of any major roadways.

3.14.3.6 No Project / No Action Alternative

Under the No Project Alternative, there would be no construction of the transmission line, substation, or communication lines, and, therefore, there would be no traffic or transportation impact. Likewise, without the project, there would be no change in the volume of vehicles contributing to traffic during operation of the project. Under the No Project Alternative, there would be no adverse traffic impacts due to project construction or operation along I-15; SRs 161,164, or 604; or US 95. This alternative would result in no impact to traffic or transportation.

3.14.3.7 Transmission Alternative Route A

Transmission Alternative Route A is similar to the proposed route with the exception of an approximately 4-mile segment that would run north and south near MP 2, approximately 0.83 miles from the City of Boulder. Alternative Route A was created to bypass the proposed route segment between MP 1 and MP 7 by heading west and then north to join the existing ROW.

Transmission Alternative Route A would be similar to the proposed project in terms of potential construction traffic impacts at construction yards and guard crossings, traffic load and capacity, LOS standards, and emergency access. Like the proposed project, Transmission Alternative Route A would cause direct minor adverse traffic impacts at construction yards and crossing points (MP 29) along the transmission line route; these impacts would be short term. Impacts associated with construction traffic would be minor and short term and would be reduced by implementation of MM Trans-1. Construction of this alternative would result in a less than significant impact with mitigation on traffic load and capacity and LOS standard, and a less than significant impact without mitigation for emergency access.

Maintenance activities associated with substations and transmission lines would not require additional vehicles and, therefore, would not increase traffic beyond existing LOSs, as current operations and maintenance procedures would be continued. There would be no operational impacts associated with traffic under this alternative.

3.14.3.8 Transmission Alternative Route B

Transmission Alternative Route B is similar to the proposed route except for a segment that runs north and south near MP 2, approximately 0.83 miles from the City of Boulder. Alternative Route B was created to bypass the proposed route segment between MP 1 and MP 2 by heading north and then southwest to join the existing ROW.

In terms of potential construction traffic impacts at construction yards and guard crossings, Transmission Alternative Route B would be similar to the proposed project and Alternative Route A. There would be no operational impacts associated with traffic under this alternative.

3.14.3.9 Transmission Alternative Route C

Transmission Alternative Route C is similar to the proposed project in terms of potential construction traffic impacts at construction yards and guard crossings, traffic load and capacity and LOS standard and emergency access. In terms of potential construction traffic impacts at construction yards and guard crossings, Transmission Alternative Route C would be similar to the proposed project and Alternatives A and B. There would be no operational impacts associated with traffic under this alternative.

3.14.3.10 Transmission Alternative Route D and Subalternative E

In terms of potential construction traffic impacts at construction yards and guard crossings, traffic load and capacity and LOS standard, and emergency access, Transmission Alternative Route D and Subalternative E would be similar to the proposed project and Alternatives A, B, and C. There would be no operational impacts associated with traffic under this alternative.

3.14.3.11 Telecommunication Alternative (Golf Course)

In terms of potential construction traffic impacts at construction yards and guard crossings, traffic load and capacity and LOS standard, and emergency access, the Golf Course Telecommunication Alternative would be similar to the proposed project and Alternatives A, B, C, D, and Subalternative E. There would not be any operational impacts under this alternative.

3.14.3.12 Telecommunication Alternative (Mountain Pass)

In terms of potential construction traffic impacts at construction yards and guard crossings, traffic load and capacity and LOS standard, and emergency access, the Mountain Pass Telecommunication Alternative would be similar to the proposed project and Alternatives A, B, C, D, and Subalternative E and the Golf Course Telecommunication Alternative. There would not be any operational impacts under this alternative.

3.14.4 Mitigation Measures

MM TRANS-1: No Lane Closures on I-15 during Friday Peak Usage. The applicant will limit construction activities on Friday afternoon from noon to 10 p.m. so as not to require lane closures on I-15.

MM TRANS-2: Helicopter Flight Plan and Safety Plan. At least 30 days prior to construction of the project, the applicant will coordinate with the FAA for review and approval of any helicopter flight plans that would take place during construction and operation. The applicant will then provide information to the BLM and the CPUC regarding the intended need and use of helicopters during construction and operation of the project, including the flight and safety plan; the number of days and hours that the helicopter would operate; the type and number of helicopters that would be used; the location, size, and number of staging areas for helicopter take off and landing; and written approval from property owners for use of helicopter staging areas. ~~In the event that plans for~~

~~the SNSA are approved, t~~The applicant will review the helicopter flight and safety plan with the FAA and the CCDOA at least 30 days prior to the start of SNSA construction and resubmit the revised plan to the BLM and the CPUC.

MM TRANS-3: Traffic Control Plan. Prior to start of construction of the EITP, the applicant will prepare and implement a Traffic Control Plan for the project to address staggering of deliveries on I-15 during peak traffic times.

3.14.5 Whole of the Action / Cumulative Action

Below is a brief summary of information related to transportation and traffic in the ISEGS FSA/DEIS (CEC and BLM 2009). This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.

3.14.5.1 ISEGS Setting

The ISEGS regional and local setting is the same as that described above for the EITP, since the same transportation network would be used for construction and operation traffic. Specifically, I-15 and its ramp terminals (Yates Well Road and Colosseum Road) would be used for ISEGS-related traffic. Table 3.14-7 identifies the existing traffic conditions on these roads and the anticipated traffic conditions if the project were constructed.

Table 3.14-7 ISEGS Intersection LOS Analysis with Project Construction Traffic

Roadway Segment on Main Street	Capacity (vehicles/day)	Existing			Construction Traffic (vehicles/day)	With Project		
		Volume (vehicles/day)	V/C	LOS		Volume (vehicles/day)	V/C	LOS
Colosseum Road	3,000	NA	NA	A	243	0.08	NA	A
Yates Well Road	6,000	249	0.04	A	243	492	0.08	A
I-15 NB & SB	72,000	59,690	0.83	C	243	59,933	0.83	C

Sources: CEC and BLM 2009 (Sources of capacity and volume data for Yates Well Road and I-15 are TRB 2000, COSB 2007, and Caltrans 2007a.)

Notes:

Volume data for Colosseum Road, a two-lane direct road, is not maintained; however, based on field observation, this road is seldom used and is therefore assumed to operate at LOS A (CEC and BLM 2009).

These data for all roads are based on the original ISEGS project description, which has been replaced with the Mitigated Ivanpah 3 Alternative. Vehicle trips for the Mitigated Ivanpah 3 Alternative would be reduced, according to the CEC's Errata to the Final Staff Assessment Air Quality Section, and the construction schedule would be reduced from 48 to 40 months. Therefore, the numbers above would be lower.

Key:

LOS= Level of Service
NB = northbound
SB = southbound
V/C = volume-to-capacity ratio

Applicable Laws, Regulations, and Standards

Because EITP and ISEGS would be in different locations, some laws, regulations, and standards listed in Section 3.14.2, "Applicable Laws, Regulations, and Standards," would not apply to ISEGS. Since ISEGS would be developed entirely within California on BLM land, the Nevada regulations associated with the EITP would not apply. However, there are no ISEGS project components or operational features that would trigger laws, regulations, or standards in addition to those required for EITP related to transportation and traffic.

3.14.5.2 ISEGS Methodology

CEC's FSA Methodology

The ISEGS FSA/DEIS prepared by the CEC and the BLM evaluated whether the project would:

- Cause an increase in traffic that would be substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)
- Exceed, either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would result in substantial safety risks
- Generate glare that could present a hazard to roadway vehicle traffic or aircraft
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)

~~ISEGS FSA/DEIS, BLM and CEC staff (Staff) reported on existing conditions and assessed impacts to transportation and traffic. Staff evaluated the potential of the proposed project to increase traffic on the Friday evening commute on I-15. Staff considered compliance with the laws, ordinances, regulations, and standards associated with the project components and location. Staff also considered whether there would be a significant impact under CEQA using the impact criteria listed in 3.14.3.2.~~ In addition, ~~Staff~~ the BLM and CEC considered two potential additional impacts related to (1) nearby school operations and (2) transportation of hazardous materials. However, since no schools are located within 30 miles of the ISEGS site, the FSA/DEIS did not contain an analysis of impacts to schools. However, the Operation Impacts and Mitigation section of the FSA/DEIS did include an analysis of the impacts of transporting hazardous materials.

BLM's FEIS Methodology

The ISEGS FEIS prepared by the BLM evaluated impacts based on the same methodology described above for the FSA/DEIS.

3.14.5.3 ISEGS Impacts

The CEC and the BLM have published the impacts discussed below related to transportation and traffic for the ISGES project and recommend the same mitigation measures and conditions of certification to reduce impacts. Additional impacts related to safety (such as glare from heliostats and air traffic concerns) are discussed in Section 3.8, "Hazards, Health, and Safety," in this EITP FEIR/EIS.

CEC's FSA/Addendum Conclusions

Construction Impacts

All intersections would continue to operate at an acceptable LOS (C or better) in the morning and afternoon peak hours in spite of the addition of construction traffic. Construction traffic would result in a change at the intersection of

the I-15 northbound ramps and Yates Well Road from LOS A to LOS B during the afternoon peak hours. However, this change would not be significant because the LOS would still be above level C.

~~Because northbound I-15 is already highly congested on Friday afternoons (LOS F), and project-related construction traffic would exacerbate congestion in the area of Yates Well Road, project impacts on northbound 1-15 on Fridays would be significant. To limit the proposed project's contribution to existing congestion on northbound I-15 on Friday afternoons, Staff proposed Condition of Certification TRANS-1, which would require development and CEC staff approval of a traffic control plan. The traffic control plan would include methods to substantially reduce the project's impact on I-15 traffic, such as staggering the departure of construction workers from the ISEGS site on Friday afternoons and/or establishing a carpool/vanpool incentive program. Staff believed that with proper implementation of the traffic control plan, project traffic accessing northbound 1-15 from Yates Well Road would be distributed at intervals sufficient to reduce the congestive effect of project traffic along this segment of 1-15 on Friday afternoons during construction to a less-than-significant level (fewer cars would be attempting to merge into congested I-15 traffic from the Yates Well Road on-ramp at any given time).~~

While northbound I-15 is already highly congested on Friday afternoons (LOS F), and project-related construction traffic would exacerbate congestion in the area of Yates Well Road, project impacts on northbound 1-15 on Fridays would be reduced to less than significant with the implementation of the Traffic Control Plan required by proposed Condition of Certification TRANS-1. Therefore, construction and operation of the ISEGS project would not cause a direct significant impact on northbound I-15 on Friday afternoons, but would contribute to a cumulatively considerable significant impact on northbound I-15 on Friday afternoons. This cumulative impact is discussed in Chapter 5, "Cumulative Scenario and Impacts."

Additionally, construction truck traffic could result in unexpected damage to Yates Well Road and I-15 freeway ramps. Therefore, TRANS-2 requires that any project construction-related damage to Yates Well Road or I-15 freeway ramps be repaired to their original condition, prior to the start of project construction.

Operational Impacts

The operational phase of ISEGS would require 90 daily employee commutes, or 180 daily trips. Thirty employees would be required for the day shift. The remaining 60 employees would work on the night shift and would not travel during the peak hours. Thirty operational trips added to 1-15 during peak hours would not create a substantial increase in traffic volume and would not result in a significant impact Monday through Thursday. However, as indicated previously, northbound 1-15 operates at LOS F on Friday afternoons and into the late evening. The same potential impact identified for construction traffic would result during operation, yet be mitigated with Condition of Certification TRANS-1 (Traffic Management Plan).

An operational impact of ISEGS analyzed in the transportation and traffic section relates to glare from heliostats and the power tower receiver, in addition to thermal plumes. A detailed analysis of the potential safety impacts to aviators and motorists concludes that impacts would be less than significant with mitigation measures. This impact analysis is not discussed for the EITP, because it applies to an ISEGS-specific project component not proposed for the EITP.

Decommissioning Impacts

Following the operational life of 50 years, the ISEGS project owner would close and decommission the project. Closure of ISEGS would require a number of worker vehicle trips and haul trips to dismantle and haul project infrastructure from the ISEGS site. While the exact number of vehicle trips is unknown at this point, it is reasonable to assume the number of trips for decommissioning would be similar to that of construction estimates for the project. It is also likely that due to expected growth and development in the project area and in Las Vegas, the LOSs on 1-15 would be lower than they are currently. Therefore, it is reasonable to expect that impacts to the local and regional transportation network would be similar to those related to the construction of ISEGS. However, with implementation of measures similar to those identified in Conditions of Certification TRANS-1 through TRANS-5, impacts would be expected to be less than significant.

BLM's FEIS Conclusions

The BLM's FEIS concludes, as does the CEC FSA Addendum, that with the implementation of TRANS-1 and TRANS-2, impacts due to transportation and traffic would be reduced.

3.14.5.4 ISEGS Conditions of Certification / Mitigation Measures

The ISEGS CEC/BLM FSA/DEIS ~~recommends that~~and the BLM FEIS recommend the ~~following c~~Conditions of cCertification ~~be required by the CEC and the BLM~~ /mitigation measures listed below to lessen impacts to traffic and transportation if the project is approved:. Additional mitigation measures related to safety and air traffic are discussed in Section 3.8, "Hazards, Health, and Safety," in this EITP FEIR/EIS.

TRANS-1: TRAFFIC CONTROL PLAN. Prior to start of construction of the ISEGS, the project owner will prepare and implement a Traffic Control Plan for ISEGS construction and operation traffic, containing a Traffic Management Plan addressing the movement of workers, vehicles, and materials, including arrival and departure schedules and designated workforce and delivery routes.

TRANS-2: REPAIR OF PUBLIC RIGHT-OF-WAY. The project owner will restore all public roads, easements, and ROWs that have been damaged due to project-related construction activities to original or near-original condition in a timely manner.

~~**TRANS-3: HELIOSTAT POSITIONING PLAN AND MONITORING.** The project owner will prepare a Heliostat Positioning Plan identifying potential sensitive receptors and heliostat movements that could result in exposure of these receptors to reflected solar radiation. The project owner will also prepare a Heliostat Operation Plan to avoid human health and safety hazards at locations of sensitive receptors according to defined exposure limits and will prepare a monitoring and reporting plan and update it annually for the first 5 years and then every 2 years for the life of the project.~~

~~**TRANS-4: VERIFICATION OF POWER TOWER RECEIVER LUMINANCE AND MONITORING.** Upon commencement of commercial operation of each of the three ISEGS power plants and at intervals of every 5 years thereafter, the project owner will for each power tower evaluate the intensity of luminance of light reflected from all four sides (north, south, east, and west) of the power tower receivers, as measured from the power plant boundary, nearest road, and distances of 200, 500, 1,000, and 1,500 meters from the power tower receivers.~~

~~**TRANS-5: POWER TOWER LIGHTING.** The project owner will ensure that each power tower is marked and lighted according to the recommendations included in the FAA aeronautical study performed for each tower. Additionally, the project owner will submit FAA Form 7460-2 Part II, Notice of Actual Construction or Alteration, to the FAA within 5 days of completion of construction of the tower to its greatest height.~~

~~**TRANS-6: FAA NOTIFICATION.** Prior to start-up and testing activities of the plant and all related facilities, the project owner will coordinate with the FAA to notify all pilots using the airspace in the vicinity of the ISEGS of potential air hazards from turbulence.~~

3.14.6 Combined Impact of EITP and ISEGS

The CEQA and NEPA EITP and ISEGS impact analyses for transportation and traffic were based on similar significance criteria that evaluated the extent to which the proposed projects would increase traffic; exceed LOS standards; result in inadequate emergency access; result in inadequate parking capacity; conflict with adopted policies, plans, or programs supporting alternative transportation; affect air traffic patterns; or result in roadway closures.

Construction of the EITP is projected to take 18 to 19 months, beginning the last quarter of 2011 and ending mid-2013. A maximum of 204 construction and personnel vehicles could be in use at any one time. The proposed project does not include plans to close I-15 during construction, but one or several I-15 lanes may be closed to pull the transmission lines across the highway. I-15 experiences LOS D operating conditions in the areas that would be impacted during construction of the EITP. Construction of the ISEGS project is projected to take 40 months. During peak construction, approximately 243 construction vehicles are expected to drive to the site. During peak construction, all intersections would continue to operate at an acceptable LOS (C or better), with the exception of Friday afternoon traffic on northbound 1-15, which already operates at LOS F. I-15 traffic would be exacerbated by project construction activities.

The CPUC concluded that with mitigation, impacts on traffic and transportation from construction, operation, and maintenance of the EITP would be less than significant. Mitigation measures requiring that I-15 lanes not be closed (MM TRANS-1), the implementation of a Helicopter Flight Plan (MM TRANS-2), and the implementation of a Traffic Control Plan (MM TRANS-3) would reduce traffic load, LOS, and air traffic pattern impacts to less than significant levels. APMs would be sufficient to reduce impacts on emergency access to less than significant levels. The CPUC concluded that there would be no impact on parking, support for alternative transportation, or road closures (see "CEQA Significance Determinations" in Section 3.14.3.5, "Proposed Project / Proposed Action").

The CEC concluded that impacts, including those that would affect I-15, would be reduced to less than significant levels with mitigation. Mitigation measures included the implementation of a Traffic Management Plan (MM TRANS-1), requirements to repair damaged public roads and other ROWs (MM TRANS-2), requirements to properly mark and light power towers (MM TRANS-5), and requirements to coordinate with the FAA regarding plume hazards (MM TRANS-6) that would reduce traffic load, LOS, emergency access, road closure, and air traffic impacts to less than significant levels. The CEC concluded that there would be no impact on parking (see "CEC's FSA/Addendum Conclusions" in Section 3.14.5.3, "ISEGS Impacts"). Although no determination was made in the ISEGS FSA/DEIS about impacts on the support for alternative modes of transportation, there is no indication that impacts under this criterion would be adverse. The ISEGS FSA/EIS does not indicate that helicopters would be used during construction of the proposed project.

The BLM concluded that the EITP would result in direct minor adverse traffic impacts due to project construction access to roads, but the impacts would be localized at construction yards and crossing points along the transmission line route and would be short term. The impacts would be reduced with mitigation. The BLM concluded that operation and maintenance activities for the EITP would not result in an adverse impact on ground transportation. Operation and maintenance would require helicopter usage, but MM TRANS-2 requires the applicant, in coordination with the FAA, to develop a Helicopter Flight Plan and Safety Plan, which would reduce impacts on air traffic to minor (see "NEPA Summary" in Section 3.14.3.5, "Proposed Project / Proposed Action"). Similarly, the BLM concluded that mitigation measures for the ISEGS project would adequately reduce impacts on traffic and transportation (see "BLM's FEIS Conclusions" in Section 3.14.5.3, "ISEGS Impacts").

Given the geographical proximity and overlapping schedules of the EITP and the ISEGS project, it is reasonable to assume that the two projects would contribute to a cumulatively significant impact on I-15 traffic. MM-C-TRANS-1, however, in addition to the measures listed in the preceding paragraphs, would further reduce impacts on I-15 traffic during construction of the EITP. MM-C-TRANS-1 requires the applicant to limit the use of I-15 on Fridays from noon to 10 p.m. by using alternative routes and planning sufficiently such that vehicular use of I-15 for construction of the EITP would be limited to fewer than 15 vehicles every 15 minutes. Therefore, the combined impact of the EITP and ISEGS project would be less than significant. See also Section 5.3.13.4, "Cumulative Impact Analysis," for a discussion of cumulative impacts associated with transportation and traffic.

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4. Comparison of Alternatives

4.1 Introduction

This section provides a comparison of the proposed project and alternatives described in Chapter 2 and analyzed in Chapter 3 for EITP[1]. The comparative analysis presented in this section focuses on the differences in impacts among the various alternatives, with particular emphasis given to the differences in significant adverse effects. This section is intended to provide decision-makers with information about the merits and disadvantages of the alternatives to assist them in their consideration of the proposed project and to assist the public in understanding the differences between the alternatives. Consistent with State CEQA Guidelines (Section 15126.6(e)(2)), the Environmentally Superior Alternative identified by the CEQA Lead Agency, the California Public Utilities Commission (CPUC), is presented in Section 4.3. Among the alternatives analyzed in this EIR/EIS, the NEPA Lead Agency, the Bureau of Land Management (BLM), has identified the Preferred Alternative (Section 4.3), as established in NEPA Regulations (40 CFR 1502.14). Furthermore, pursuant to NEPA Regulations (40 CFR 1505.2(b)), the environmentally preferable alternative will also be identified in the Record of Decision (ROD) for the Project[2].

Section 4.2 provides a summary of the proposed project and the alternatives analyzed in this EIR/EIS. Section 4.3 describes the methodology used for comparing alternatives and presents a comparison matrix of environmental impacts for all the alternatives by environmental issue or resource area. Section 4.4 provides a discussion highlighting the differences and similarities among the alternatives and identifies the environmentally superior alternative as required by CEQA, and the agency preferred alternative as required by NEPA Regulations (40 CFR 1502.14).

4.2 Summary of Alternatives

To facilitate a clear understanding of the alternatives, this section summarizes the detailed descriptions for each alternative presented in Chapter 2. The primary features of the proposed project and each alternative are presented in a series of tables for each alternative, and a summary matrix of the components of the proposed project and all alternatives is provided in Table 4.1 at the end of this section, to allow for ease of comparison. An overall map of the proposed project and alternatives is presented in Figure 2-1 at the beginning of Chapter 2. More detailed route maps are presented in Figures 2-10 through 2-14.

The alternatives described below are organized into (1) transmission line routing alternatives and (2) telecommunication path routing alternatives. These alternatives were identified after a screening process, which is further described in Appendix A-1, "Alternatives Screening Report" (ASR). The ASR evaluated the ability of 18 potential alternatives and/or combination of alternatives to meet the following CEQA/NEPA requirements for alternatives: consistency with project objectives and purpose and need, feasibility, and potential to eliminate significant environmental effects. After initial screening, seven alternatives were determined to meet the CEQA/NEPA alternatives screening criteria and have been retained for full analysis in the EIR/EIS. These retained alternatives and the No Project / No Action Alternative are described in detail in Section 2.3 and are summarized below.

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1 For the Whole of the Action / Cumulative Action, impacts from ISEGS would be the same for all alternatives evaluated for EITP.

2 See Section 4.4 for a comparison of the agency preferred alternative and the environmentally preferable alternative, based on NEPA regulations.

4.2.1 No Project / No Action Alternative

The No Project / No Action Alternative considers the results if the proposed project were not implemented. If the project were not built, none of the activities or potential environmental impacts associated with it would occur. Analysis of the No Project Alternative and the corresponding No Action Alternative is required by CEQA and NEPA, respectively, to allow state (CPUC) and federal (BLM) decision-makers to compare the impacts of the project and its alternatives with the impacts of not approving the project. A BLM No Action decision would be the denial of the right-of-way (ROW) application filed by Southern California Edison (SCE, the applicant).

Under the No Project / No Action Alternative, the objectives of the proposed project would not be accomplished. The new electrical transmission facilities to connect renewable energy sources in the Ivanpah Valley area would not be constructed. The applicant would continue to operate and maintain the existing 115-kilovolt (kV) transmission structures and substations and access and spur roads under a variety of agreements and permits. The applicant would also be required to interconnect and integrate power generation facilities into its electric system. This requirement is established by Sections 210 and 212 of the Federal Power Act (16 United States Code (U.S.C.) § 824 (i) and (k)) and Sections 3.2 and 5.7 of the California Independent System Operator (CAISO) Tariff.

Under the No Project / No Action Alternative, the following events or actions (scenarios) related to electric generation and transmission could be reasonably expected to occur in the foreseeable future:

- As currently conceived, solar projects proposed in the Ivanpah Valley area would be postponed or cancelled. Applicants for certain projects planned in the area have stated their intention to connect to an upgraded 230-kV transmission network, and it can be reasonably assumed that other planned projects in the area have the same intention. To continue, these proposed renewable energy projects would have to find alternate means to connect to the existing transmission system without compromising system reliability.
- The California Renewables Portfolio Standard (RPS), which requires retail sellers of electricity to increase their sales share produced by renewable energy sources to 20 percent by 2010, might not be achieved without access to renewable energy from the Ivanpah Valley. While access to renewable energy from the Ivanpah Valley could be provided via other methods, the location of the existing SCE transmission corridor in relation to the planned renewable generation projects in the Ivanpah Valley area make it a natural candidate for providing access to the CAISO-controlled grid.
- Other renewable energy resources would need to be identified and transmission studies would need to be conducted to connect these newly identified sources to the transmission grid. This could delay SCE's, and other utilities', ability to reach the RPS goal of 20 percent renewable generation sources by 2010.
- If the generation projects currently planned (mentioned above) were approved and constructed, transmission providers such as the applicant, Pacific Gas and Electric (PG&E), or the Los Angeles Department of Water and Power (LADWP) would be required to accommodate the power load by upgrading existing transmission infrastructure or building new transmission facilities along a different alignment, and/or developers of solar and wind generation facilities would need to build their own transmission facilities to connect to the existing grid. These renewable generation facilities could also connect with a transmission system that serves customers outside of California.
- If the proposed transmission system is not constructed, the planned renewable generation facilities would need to find alternative means for transmitting their power to load centers and customers. Therefore, the No Project / No Action Alternative might not meet the objectives outlined by the CPUC and the BLM. Specifically, under the No Project / No Action Alternative, access to the CAISO-controlled grid might not be

provided to solar generation projects planned for the Ivanpah Valley area because these projects might not be constructed or could connect to transmission systems that service customers outside of California.

- Under the No Project Alternative, the applicant would need to identify alternate renewable generation sources to meet the state RPS goals. This could result in delaying the applicant's ability to comply with the RPS mandate and, depending on the alternate sources identified, could result in greater environmental impacts than the proposed project, as they might require creation of a new ROW or might require ground disturbance in previously undisturbed areas.

4.2.2 Transmission Line Routing Alternatives

There are five transmission line routing alternatives. All of these are minor route variations to the proposed project transmission line route. Two of these alternatives, Transmission Alternative Routes A and B, were developed to avoid a segment of the proposed project route that would deviate from designated transmission corridors. The other three transmission line route alternatives, Alternatives C and D and Subalternative E, were developed to avoid or reduce potential impacts to Ivanpah Dry Lake.

Route Parallel to LADWP Line Segment Alternative (Transmission Alternative Route A)

Transmission Alternative Route A (Figures 2-1 and 2-11) would begin at the Eldorado Substation. The line would exit the substation to the north and join the existing Eldorado–Baker–Coolwater–Dunn Siding–Mountain Pass ROW. The line would proceed generally west on a 130-foot ROW and cross three LADWP transmission lines (McCullough–Victorville No. 1 500-kV transmission line, McCullough–Victorville No. 2 500-kV transmission line, and Mead-Victorville 287-kV transmission line) to the north before heading west.

The route would then cross the LADWP 500-kV transmission line (Marketplace–Adelanto). Transmission Alternative Route A would continue west for approximately 5.0 miles on a new ROW, and then turn north for approximately 1,000 feet before crossing the LADWP Marketplace–Adelanto 500-kV transmission line again and joining the proposed project route at MP 7.

The purpose of this alternative is to bypass a segment of the proposed project route that would deviate from designated transmission corridors and would cross an approximately 0.8-mile segment within the Boulder City Conservation Easement. Although this 0.8-mile ROW currently contains the existing 115-kV line, as stated above, it falls outside of the BLM-designated corridors. Therefore, the applicant would need to obtain Clark County and City of Boulder City approval to widen the ROW to the 100 to 130 feet required for the upgraded 230-kV line (see mitigation measure [MM] LU-1). Transmission Alternative Route A would bypass this segment by heading north from the Eldorado Substation following existing designated transmission corridors.

North of Eldorado Alternative (Transmission Alternative Route B)

Transmission Alternative Route B (Figure 2-11) would begin at the Eldorado Substation. The line would exit the substation to the north and parallel the Eldorado–Mead 230-kV transmission line on existing ROW for approximately 2.5 miles before turning southwest. The route continues southwest for approximately 2.8 miles and re-joins the existing Eldorado–Baker–Coolwater–Dunn Siding–Mountain Pass 115-kV transmission line ROW at milepost [MP] 2 of the proposed route. This alternative would require numerous, difficult transmission line crossings, and several existing overhead utility lines would require modification or relocation to accommodate passage of the Alternative Route B transmission line.

Similar to Transmission Alternative Route A, the purpose of Transmission Alternative Route B is to bypass a segment of approximately 0.8 miles where the proposed project would deviate from existing designated transmission corridor

and would cross lands administered by the City of Boulder (Boulder City Conservation Easement). Transmission Alternative Route B was created to bypass these segments by heading southwest from the Eldorado Substation to join the existing ROW.

North Dry Lakes Reroute Alternative (Transmission Alternative C)

Transmission Alternative Route C (Figure 2-12) would begin at the Eldorado Substation and follow the proposed route to the point where the line would reach the northeastern edge of Ivanpah Dry Lake (MP 27, tower 185). Transmission Alternative Route C would then continue west and southwest on new 130-foot ROW around Ivanpah Dry Lake for approximately 5.3 miles before rejoining the proposed project route at MP 32, tower 218. Transmission Alternative Route C was developed to minimize potential impacts to Ivanpah Dry Lake.

South Dry Lakes Reroute Alternative (Transmission Alternative Route D)

Transmission Alternative Route D (Figure 2-12) would parallel the existing LADWP Marketplace–Adelanto 500-kV transmission line as it crosses through Ivanpah Dry Lake. This route would reduce the overall transmission footprint, since the EITP towers would follow to the extent feasible the existing LADWP 500-kV ROW. Transmission Alternative Route D would begin at the Eldorado Substation and follow the proposed route until it would approach the northeastern edge of Ivanpah Dry Lake (MP 27, tower 184). Transmission Alternative Route D would then continue south and then southwest on a new 130-foot ROW around the Town of Primm for approximately 3.3 miles before rejoining the proposed project route at MP 30, tower 203.

South Dry Lakes Bypass (Transmission Subalternative Route E)

Transmission Subalternative Route E is a subalternative to Transmission Alternative Route D. Subalternative E would use a shorter length of new 130-foot ROW (approximately 0.25 miles shorter than Alternative D) from MP 27 of the proposed EITP transmission line to the corridor that would parallel the existing LADWP Marketplace–Adelanto 500-kV transmission line. As would Transmission Alternative D, this route would reduce the overall transmission footprint, since the EITP towers would follow to the extent feasible the existing LADWP 500-kV ROW. Transmission Subalternative Route E would proceed south from MP 27 for approximately 1 mile and then follow the route proposed for Transmission Alternative Route D (Figure 2-12).

4.2.3 Telecommunication Alternatives

The two alternatives to the proposed telecommunication system are the Golf Course Telecommunication Alternative and the Mountain Pass Telecommunication Alternative. These alternatives include additional undergrounded segments and installation of telecommunication cable along existing distribution lines. The telecommunication alternatives were designed to minimize potential visual impacts of an aboveground microwave tower. Both alternatives would follow the same path as the proposed telecommunication route, from the Eldorado–Lugo transmission line MP 25 to the town of Nipton, California (Path 2, Sections 1 and 2).

Golf Course Telecommunication Alternative

The Golf Course Telecommunication Alternative route would extend from Nipton to the point on the north side of Nipton Road where it intersects with I-15. This alternative would consist of a combination of all-dielectric self-supporting fiber cable installed on existing Nipton 33-kV wooden distribution lines and underground in new duct banks (Figure 2-13).

Approximately 1 mile of all-dielectric self-supporting fiber cable would be installed overhead on an existing Nipton 33-kV distribution line immediately west of Nipton, on the north side of Nipton Road. Pole replacement for this alternative is not anticipated; however, the detailed project engineering design process might indicate that pole replacement

would be necessary. From the westernmost pole on the Nipton line before it would cross Nipton Road to the south, fiber optic cable would be installed in a new underground duct along the north side of Nipton Road in new roadside ROW to the intersection of Nipton Road and I-15. The underground cable length for this segment would be approximately 9 miles.

From the I-15–Nipton Road junction, the Golf Course Telecommunication Alternative route would parallel I-15, running north on an existing Nipton 33-kV distribution line and crossing I-15 near the Primm Valley Golf Course. This alternative route would cross the Primm Valley Golf Course in a new underground duct (Figure 2-13), then continue on an existing Nipton 33-kV distribution line to a point approximately 1 mile north of the Ivanpah Substation. The telecommunication line would then be installed in a new underground duct for approximately 1 mile to the Ivanpah Substation. The entire route from the I-15 junction to the Ivanpah Substation would be approximately 10 miles.

Mountain Pass Telecommunication Alternative

The Mountain Pass Telecommunication Alternative route would extend from Nipton to the point on the north side of Nipton Road where it intersects with I-15. This alternative would consist of all-dielectric self-supporting fiber cable installed on existing Nipton 33-kV wooden distribution lines and underground in new duct banks (Figure 2-14).

Approximately 1 mile of all-dielectric self-supporting fiber cable would be installed overhead on an existing Nipton 33-kV distribution line immediately west of Nipton, on the north side of Nipton Road. Pole replacement for this alternative is not anticipated; however, the detailed project engineering design process might indicate that pole replacement would be necessary. From the westernmost pole on the Nipton line before it crosses Nipton Road to the south, fiber optic cable would be installed in a new underground duct along the north side of Nipton Road in new roadside ROW to the intersection of Nipton Road and I-15. The underground cable length for this segment would be approximately 9 miles.

From the I-15 junction point, the route would parallel I-15 in an underground duct for approximately 1.0 miles and then the cable would exit the underground duct and be strung on an existing Nipton 33-kV distribution line. The alternative route would then continue west to the town of Mountain Pass, then north to the Mountain Pass Substation. From there, the cable route would proceed northeast on an existing Nipton 33-kV distribution line to the Ivanpah Substation. The route would enter the proposed Ivanpah Substation from the south via approximately 500 feet of underground conduit that would be installed from the last Nipton 33-kV distribution line pole to the substation. The Mountain Pass Telecommunication route, from the I-15 junction point to the Ivanpah Substation, would be approximately 15.0 miles.

4.3 Comparison of Environmental Impacts

Potential impacts associated with the construction, operation, and maintenance of the eight alternatives to the proposed EITP (including the No Project Alternative) were identified and discussed for each resource section and environmental issue in more detail in Sections 3.2 to 3.14 of this ~~Draft~~ EIR/EIS. Impacts identified for each resource area and alternative were compared with those identified for the proposed project, in terms of potential changes in impact significance (CEQA) and in the intensity, magnitude, and spatial and temporal extent of potential effects (NEPA). This section summarizes the methodology used for comparison of environmental impacts and presents the results of the comparison in a summary and a comparison matrix (Table 4-1).

Summary of the Comparison of Environmental Impacts

Transmission Routing Alternatives

Construction and operation and maintenance of Transmission Alternative Routes A, B, C, and D and Subalternative E would differ from the proposed project in length of ROW required and the associated land disturbance, as well as in location with respect to certain resources features that could increase or lessen the environmental effects associated with each proposed project component.

All the transmission alternative routes might impose stronger overall visual contrast due to structures that would not parallel the existing transmission facilities. However, these minor adverse effects on visual resources would still be consistent with a VRM Class III designation. Alternatives C and D and Subalternative E would have reduced visual impacts on the Desert Oasis Apartment Complex, while Alternative C would lessen potential impacts on recreational users.

Air quality emissions would be approximately 5 percent above the emissions of the proposed project for Alternatives B and C, due to their additional associated land disturbance during construction activities. Alternatives A and D and Subalternative E would impose impacts on air quality similar to those of the proposed project.

Major differences between potential impacts from the transmission alternative routes have been identified for biological resources. Increases in the total permanent and temporary land disturbance in previously undisturbed desert habitat would result in the direct and indirect loss of habitat for listed or sensitive plant species, native vegetation communities, and sensitive wildlife habitat. Alternatives B and C would have greater associated disturbance and effects on these resources. The increase in the spatial extent of the project footprint would increase the potential for disturbing wildlife and inducing wildlife mortality. In particular, Alternative C would cross higher quality desert tortoise habitat. Alternative D and Subalternative E would also have associated impacts on native vegetation (pink funnel lily) not found along the proposed project route.

Other resource areas would have slightly different impacts than would the proposed project. Alternatives A and B would not impact known cultural resources, and the potential for buried, and therefore previously unidentified, cultural resources or human remains would be the same as for the proposed project. Alternatives C and D and Subalternative E would lessen impacts on noise, since they would be farther away from sensitive receptors than the proposed project would be.

Telecommunication Alternatives

Major differences between potential impacts from the telecommunications alternatives have been identified for biological resources. The Golf Course Telecommunication Alternative would increase potential impacts on desert tortoise habitat due to increased critical habitat acreage impacted. Greater impacts to wildlife have been identified for the Mountain Pass Telecommunication Alternative, due to the proximity of construction activities to bighorn sheep and montane bird habitats.

No Project / No Action Alternative

Under the No Project / No Action Alternative, the proposed project, including the transmission line, the proposed Ivanpah Substation, the telecommunications line, and all other components of the proposed project, would not be constructed. Therefore, none of the changes to the existing environment would occur, and there would be no adverse impact to any of the identified environmental resources.

If the proposed transmission system is not developed but the planned renewable generation facilities are developed, an alternative method for connecting renewable generation facilities in the Ivanpah Valley area would need to be

developed. However, because the proposed project would involve only the replacement of an existing transmission line within an existing ROW, it is reasonable to assume that any alternate connection method for renewable generation facilities in the Ivanpah Valley area could result in greater impacts than the proposed project because it might require new ROW or ground disturbance in previously undisturbed areas.

4.4 Identification of the Environmentally Superior Alternative (CEQA) / Agency Preferred Alternative (NEPA)

Ranking of Alternatives (CEQA)

Based on the results of the environmental analysis presented in this ~~Draft~~ EIR/EIS, the comparison of alternatives summarized in Section 4.3 and presented in Table 4-1, and the estimated land disturbance presented in Tables 2-8 and 6-1, the following list presents the alternatives ranked from the most to the least environmentally preferred. Additionally, Transmission Route Alternatives A or B could be combined with Transmission Route Alternatives C, D or Subalternative E, and any of the routing alternatives could be combined with either telecommunication alternative.

- Proposed Project
- Transmission Alternative Routes A and D, with Subalternative E
- Transmission Alternative Route B
- Transmission Alternative Route C
- Golf Course Telecommunication Alternative
- Mountain Pass Telecommunication Alternative

Environmentally Superior Alternative (CEQA)

CEQA Guidelines require identification of the environmentally superior alternative. According to the California Code of Regulations (CCR) Title 14 §15126.6(e)(2), "if the environmentally superior alternative is the 'no project alternative,' the EIR shall also identify an environmentally superior alternative among the other alternatives." Since the No Project / No Action Alternative evaluated in this ~~Draft~~ EIR/EIS would not meet the agency's project objectives, the CPUC has determined that the environmentally superior alternative is the proposed project. In contrast with the other seven routing and telecommunication alternatives evaluated in this ~~Draft~~ EIR/EIS, the proposed project would have less land disturbance and less significant impacts on sensitive biological resources, and it would meet all of the project's objectives. However, under CEQA, this alternative would still result in significant and unavoidable impacts to desert tortoise habitat and significant impacts to air quality, hydrology, and public services.

Agency Preferred Alternative and Environmentally Preferable Alternative (NEPA)

Under Title 40 CFR Section 1502.14(e), lead federal agencies are required to "identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference." In determining which alternative is preferred, lead federal agencies consider both the "environmentally preferable alternative" and the "agency preferred alternative." The "agency preferred alternative" is the alternative that the agency believes would fulfill its statutory mission and responsibilities, considering economic, environmental, technical, and other factors. The "environmentally preferable alternative," in contrast, is the alternative that would promote the national environmental policy, as expressed in NEPA Section 101. Ordinarily, this means the alternative that would cause the least damage to the biological and physical environment; however, it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources (CEQ 1981).

The environmentally preferable alternative will be identified by the BLM in the Record of Decision (ROD) for the project; however, based on the conclusions of the environmental analysis in this ~~Draft~~ EIR/EIS, the BLM has determined that the proposed project / proposed action would fulfill the agency's objectives for the project and is therefore the agency preferred alternative. Although the intensity and extent of potential direct and indirect effects would be similar for all the alternatives carried forward in this ~~Draft~~ EIR/EIS, the proposed project would involve less temporary and permanent land disturbance within critical habitat for plant and wildlife species. Nonetheless, under NEPA, the proposed project would still result in major adverse unavoidable effects to desert tortoise habitat and major adverse impacts to aesthetics and~~,~~ air quality~~, hydrology, and public services~~.

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Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
VISUAL RESOURCES	Minor adverse effects to visual resources temporarily due to construction activities and permanently due to the introduction of taller towers and new structures, including the proposed Ivanpah Substation and the microwave tower. Construction: impacts would be greatest in areas with the greatest amount of land disturbance, such as laydown or staging areas and areas where substantial trenching would be required. Operation and maintenance: seven of the eight KOPs evaluated would conform with the established VRM or VRI classes, and one would not conform with VRM Class II. Under NEPA, this impact is considered adverse. Mitigation measures AES-1 and AES-2 would lessen the contrast in color and line that would be introduced by construction of the Ivanpah Substation. Less than significant impacts on scenic vistas and no impact within a state scenic highway. Mitigation would be required to lessen impacts on existing visual character or quality to the greatest extent possible. Less than significant source of lighting at the Ivanpah Substation, without creation of adverse glare source.	Transmission Alternative Route A would be visible only from KOP 7; all other segments of this alternative would be identical to the proposed project. Stronger overall visual contrast due to the structures not paralleling existing transmission facilities. Minor adverse effects from routing changes, but the area would still be consistent with a VRM Class III designation.	Transmission Alternative Route B would be visible only from KOP 7; all other segments of this alternative would be identical to the proposed project. Stronger overall visual contrast due to the structures not paralleling existing transmission facilities. Minor adverse effects from routing changes, but the area would still be consistent with a VRM Class III designation.	Transmission Line Alternative C would only differ from the proposed project analysis at KOPs 4, 5, and 6; all other segments of this alternative would be identical to the proposed project Stronger overall visual contrast due to the structures not paralleling existing transmission facilities. Minor adverse effect from KOPs 4 and 5. Routing changes would still be consistent with a VRM Class III designation. Reduced visual impacts on residents of the Desert Oasis Apartment Complex and recreational users of the Ivanpah Dry Lake. Same visual impacts to motorists along I-15 as the proposed project.	This alternative would only differ from the proposed project analysis at KOPs 4, 5, and 6; all other segments of these alternatives would be identical to the proposed project. Routing changes would be consistent with the VRM Class III designation for the area. No adverse effect from KOP 4, and reduced impacts to residents of the Desert Oasis Apartment Complex. Same visual impact on recreational users of Ivanpah Dry Lake and motorists along I-15 as the proposed project.	Same as Transmission Alternative Route D.	This alternative would only differ from the proposed project analysis at KOP 8; all other segments of this alternative would be identical to the proposed project. Moderate temporary impacts due to an additional segment of trenching along Nipton Road. Minor adverse visual impact to users of the Golf Course during the construction period due to trenching activities, exposure of soils, equipment, and transportation of materials. No visual impacts due to the portion of the telecommunications line along the existing 33-kV distribution lines (perceptible only at an extremely close distance).	This alternative would only differ from the proposed project analysis at KOP 8; all other segments of this alternative would be identical to the proposed project. Moderate temporary impacts due to an additional segment of trenching along Nipton Road. No visual impacts due to the portion of the telecommunications line along the existing 33-kV distribution lines (perceptible only at an extremely close distance). Minor adverse visual effects limited to construction activities.
AIR QUALITY	Temporary ambient air quality impacts and emissions of VOCs, NO_x, and PM_{10} would exceed MDAQMD daily significance thresholds. Adverse impacts would be limited to the duration of project construction; long-term and operational impacts would not occur. ~~Minor adverse construction emissions; negligible operational emissions.~~ Less than significant impacts associated with any conflict with an applicable air quality plan, contribution to violation of any air quality standards, or contribution to a considerable net cumulative increase of any criteria pollutant, and identified GHG reduction plans, policies, or regulations. Less than significant temporary impacts on generation of odors, sensitive receptors, generation of GHGs. No conflict with any ~~identified GHG reduction plans, policies, or~~	The level of construction and operational activity is expected to be similar to that of the proposed project route. Impacts virtually identical to those of the proposed project.	The level of construction and operational activity is expected to be similar to the proposed project, as it would only impact an additional 24 acres. Emissions under this scenario could be approximately 5 percent above the emissions for the proposed project.	The level of construction and operational activity is expected to be similar to the proposed project, as it would only impact an additional 5.5 acres. The emissions under this scenario could be approximately 5 percent above the emissions of the proposed project.	The level of construction and operational activity is expected to be similar to that of the proposed project route. Impacts virtually identical to those of the proposed project.	Impacts virtually identical to Transmission Alternative Route D.	Impacts virtually identical to the proposed project.	Impacts virtually identical to those of the proposed project.

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
	~~regulations~~. The applicant would be required to follow and/or consider best management practices to reduce the potential for GHG emissions.							
BIOLOGICAL RESOURCES	The proposed project would significantly and adversely affect biological resources. Overall, impacts on biological resources (except desert tortoise) from the proposed project would be minor to moderate. Construction, operation, and maintenance activities associated with the proposed project would have impacts on native vegetation, local wildlife, and special-status plants and wildlife. Incorporation of recommended mitigation measures would reduce impacts on these resources through avoidance and minimization. Potentially significant impacts on wildlife species due to direct or indirect loss of habitat for listed or sensitive plant and wildlife species. Impacts on desert tortoise critical habitat would be significant even after mitigation because previously undisturbed designated critical habitat would be permanently removed. If a significant number or length of new access roads and spur roads were necessary for construction of the project, impacts on desert tortoise habitat could be considered major and extensive. Less than significant impacts with mitigation on: • Direct or indirect loss of listed or sensitive plants; • Temporary and permanent losses of native vegetation communities and the introduction of invasive, non-native, or noxious plant species; • Drainages, riparian areas, and wetlands; • Direct or indirect loss of migratory wildlife species, corridors, or nursery sites; and • Conflict with the provisions of local ordinances or policies. ~~No impacts~~Less than significant impacts associated with the Clark County MSHCP or the BCCE with mitigation and compliance discussions.	Critical issues for this alternative include impacts to native vegetation communities, habitat for special-status plants and wildlife, and special management areas. Potential increase in total permanent impacts by 8 acres and temporary impacts by 62.2 acres in previously undisturbed desert habitat, resulting in a net increase in the direct and indirect loss of habitat for listed or sensitive plant species. Increase in acreage impacts would also increase the potential for disturbing wildlife or causing wildlife mortality, with primary impact on desert tortoise and desert tortoise habitat. Impacts to desert tortoise critical habitat would be considered significant, adverse, and long term after mitigation since this alternative passes through previously undisturbed designated desert tortoise critical habitat. Less than significant impacts on the Clark County MSHCP and the BCCE with mitigation and compliance discussions. Compared with the proposed project, impacts from Transmission	Impacts similar to those of the proposed route, but would result in a net increase in the extent and magnitude of direct and indirect impacts associated with placement of new towers and creation of new ROW and spur roads. Alternative B would result in an additional 3.7 miles of transmission line and 5.6 miles of new ROW, which would increase the acreage of permanent and temporary impacts to the native vegetation community by 10 acres and 129 acres, respectively. This alternative could result in fewer crossings of intermittent streams than the proposed project, which would decrease impacts to desert wash habitat and wildlife using this habitat. Compared with the proposed project, Alternative Route B would increase impacts to desert tortoise. Less than significant impacts on the Clark County MSHCP and the BCCE with mitigation and compliance discussions. No difference from the proposed project in the duration or severity of impacts.	Reduced impacts to the Ivanpah Dry Lake bed and disturbance to wildlife species using the vegetation and/or the lake bed as habitat. Fewer crossings of intermittent streams with this alternative. Increased extent of permanent and temporary impacts by 6.5 acres and 79 acres, respectively, to the native vegetation community and any wildlife or special-status species that use this habitat. Increase in spatial extent would increase the potential for disturbing wildlife and increasing wildlife mortality and the potential for direct or indirect loss of listed or sensitive wildlife and their required habitat. The primary issue for this alternative would be greater impacts to the desert tortoise. Compared with the proposed route, this alternative would cross higher quality desert tortoise habitat. ~~Less than significant impacts on the Clark County MSHCP and the BCCE with mitigation and compliance discussions.~~ No difference in the duration or severity of impacts from	Reduced impacts to the Ivanpah Dry Lake bed. Net increase in the extent and magnitude of direct and indirect impacts from removal of habitat for placement of new towers and creation of new ROW and spur roads. Increase of temporary impacts by 60 acres, and increase of permanent impacts by 1.2 acres. Overall impacts to native vegetation would increase, as well as the potential for impacts to special-status species. Impacts on the pink funnel lily, which is absent from the proposed transmission line route. Potential for disturbing wildlife and causing increased wildlife mortality, and direct or indirect loss of listed or sensitive wildlife and their required habitat. Alternative D would cross only a slightly greater amount of desert tortoise habitat and therefore would have a potential of impacting desert tortoise similar to that of the proposed project. No difference in the duration, severity, or	Same as Transmission Alternative Route D.	Net increase in the extent and magnitude of direct and indirect impacts. The additional land disturbances associated with the other underground segments and with pole replacement would result in a total increase in temporary and permanent losses to the native vegetation. There would also be the potential to introduce and further spread invasive and noxious weeds with any new soil disturbances. This alternative could result in beneficial impacts to raptors in the area, compared with the impacts of the proposed project. More perching and nesting posts would be available to raptors with the increase in the number of towers to be installed. The additional communication line located between the Town of Nipton and I-15 would cross approximately 12.9 miles of designated desert tortoise critical habitat. Compared with the proposed project, this alternative would increase potential impacts on desert tortoise due to the significantly increased impacted critical habitat acreage. No difference from the proposed project in the	Net increase in the extent and magnitude of direct and indirect impacts. This alternative would cross a more diverse set of vegetation habitat types, potentially impacting a more diverse range of plants and wildlife, and numerous sensitive plant species identified in botanical surveys. An increase in the acreage of previously undisturbed habitat would increase the potential for introduction of invasive, non-native, or noxious plant species. Potential greater impacts on wildlife due to construction noise and human disturbance close to areas that provide habitat for desert bighorn sheep and montane bird species. This alternative would cross an additional 9.7 miles of designated desert tortoise critical habitat. Potential beneficial impacts on raptors in the area from additional new towers. Compared with the proposed project, this alternative's impacts would be of moderate intensity.

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
		Alternative Route A would be of moderate intensity.		that of the proposed project.	extent of impacts from that of the proposed project.		duration, severity, or extent of impacts.	
CULTURAL RESOURCES	The project would have direct, adverse, and permanent impacts to Cultural Resources 36-10315 (CA-SBR-10315H), by altering the setting and disturbing elements of the site that contribute to its historic significance ~~and 36-7694 (CA-SBR-7694H)/26CK4957~~. After mitigation, ~~potential~~ impacts would be minimized or reduced to less than significant. Potential impacts on human remains, if there are unanticipated discoveries during construction, would be reduced to less than significant with implementation of APMs. Disturbance of previously unidentified cultural resources would have a less than significant impact with implementation of APMs and mitigation.	No previously recorded cultural resources are located in this alternative route. No newly discovered cultural resources were found during field surveys. This alternative would have no impacts on known cultural resources. There would be a potential for buried, and therefore previously unidentified, cultural resources or human remains. After mitigation, impacts would be negligible and less than significant.	No previously recorded cultural resources are located in this alternative route. No newly discovered cultural resources were found during field surveys. There would be no impacts to known cultural resources. There would be potential for buried, and therefore previously unidentified, cultural resources or human remains. Less than significant, negligible impacts after mitigation.	This alternative would result in significant direct adverse permanent impacts to 36-10315 (CA-SBR-10315H) ~~and 36-7694 (CA-SBR-7694H)/26CK4957~~), as would the proposed project. There would be no impacts to cultural sites 36-7689 (CA-SBR-7689H) or 26CK4135, because they are not eligible for the NRHP. Alternative C traverses the same sediments as the proposed project, which have the potential for buried, and therefore previously unidentified, cultural resources. Less than significant, negligible impacts after mitigation.	No impact to Cultural Resource 36-13416 (CA-SBR-12574H) because this site has been recommended not eligible for the NRHP. Transmission Alternative D is associated with the Boulder Transmission Line; it will be included with the Historic American Engineering Record assessment for that line. Potential for buried, and therefore previously unidentified, cultural resources. Less than significant, negligible impacts after mitigation.	Subalternative E contains no previously recorded cultural resources, and no cultural resource was discovered during the field survey for this subalternative; therefore, no impacts to known cultural resources would occur.	Impacts would be similar to those of the proposed project, although no known cultural resources are located in this alternative. No significant impacts after mitigation.	Impacts would be similar to those of the proposed project, although no known cultural resources are located in this alternative. No significant impacts after mitigation.
GEOLOGY AND SOILS	Minor long-term impacts to geology and soil resources could occur. Disturbance of the existing ground surface and natural drainages could cause minor erosion-related impacts. Operations and maintenance activities would result in continued erosion. Expansive soils could result in low to moderate levels of structural failure of the transmission and telecommunication line poles and towers and the Ivanpah Substation. There is also the potential for impacts as a result of changing geologic conditions including seismic events (fault rupture and ground shaking), subsidence, or liquefaction. Numerous non-metallic and metallic mineral deposits occur along or near the transmission line route. The Molycorp Mine would be within 1,000 feet of the Mountain Pass Telecommunications line or alternative routes. Several paleontological resources exist within 1	Transmission Alternative Route A is similar to the proposed project in terms of geology, soils, and mineralogical materials. It is also similar in topography, and its impacts would be similar to those of the proposed project. Ground-disturbing activities as part of geotechnical investigations along Alternative Route A could impact buried paleontological resources in underlying sedimentary formations of high paleontological sensitivity. Impacts would be less than significant without mitigation.	Transmission Alternative Route B is similar to the proposed project in terms of geology, soils, and mineralogical materials. It is also similar in topography. Direct impacts and mitigation associated with this alternative route are similar to those for Alternative Route A.	Similar to the proposed project in terms of geology, soils, and mineralogical materials. It is also similar in topography. The Mesquite segment of the SFS crosses Alternative Route C along the California-Nevada border at the Town of Primm nearly perpendicular to the proposed route. This impact would be negligible and localized, and would be short term relative to construction but long term with respect to operations and maintenance. Direct impacts to buried paleontological resources from ground-disturbing	Impacts and mitigation similar to those in Transmission Alternative Route C and the proposed project.	Impacts and mitigation similar to those in Transmission Alternative Route C and the proposed project.	Similar to the proposed route, except it does not cross the SFS Mesquite segment. Located in similar geology, soils, and mineralogical materials as the proposed project. Tower construction and ground-disturbing activities could impact paleontological resources in areas where underlying formations have high paleontological sensitivity. After mitigation, this alternative would result in less than significant impacts.	Located in similar geology, soils, and mineralogical materials as Transmission Alternative Routes C and D and Subalternative E in the lower elevations. Also includes earlier Precambrian metamorphic bedrock of the Clark Mountains. Topography ranges from relatively flat low-lying valley bottoms and playa to moderately steep hill slopes in the area of Mountain Pass Substation. Minor, localized, long-term impacts of the project could result from both landslides and erosion. With mitigation, these

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
	mile of the proposed project and one paleontological resource location is within 300 feet. All potentially significant geology, soil, mineral, and paleontological impacts would be mitigated to less than significant levels.			activities.				impacts would be reduced to less than significant.
HAZARDS, HEALTH, AND SAFETY	Minor, localized, short term impacts during construction and operation and maintenance. Less than significant impacts with mitigation associated with: hazards created through routine transport, use, or disposal of hazardous materials; hazards created through accidental release of hazardous materials into the environment; the exposure of the public or environment to contaminated soil or groundwater; and increased safety hazards for people residing or working within 2 miles of a public airport or public use airport. Less than significant impacts without mitigation related to ~~the exposure of the public or environment to contaminated soil or groundwater,~~ interference with an adopted emergency response plan or emergency evacuation plan~~,~~ and the exposure of people or structures to wildland fires. No impact on an existing or proposed school.	Incrementally less impact associated with the improper management or release of hazardous materials because this alternative is shorter than the proposed project. The potential to encounter contaminated soil would also ~~incrementally~~ decrease. If contaminated soils were encountered, impact would remain short term, minor, and less than significant. Potential impacts on health and safety, emergency response/evacuation routes, airports, and the risk of wildfires would be less than significant.	Similar impacts to the proposed project; no significant impacts after implementation of APMs and mitigation.	Impact on intermittent streams would be reduced due to fewer crossings, and the likelihood of impacting water resources would be reduced. More likely to present obstruction and/or hazards to aviation than the proposed project, due to the proximity to the proposed SNSA. Greater potential for ground-disturbing activities and construction within 5.2 miles of new ROW. The potential to encounter contaminated soil would incrementally increase; the impact, if contaminated soils were encountered, would be short term, minor, and less than significant.	Decreased risk to present obstructions and/or hazards to aviation than the proposed project or Alternative C. Decreased risk of improper management of hazardous materials, spills, and uncovered contaminated soils.	Same as Transmission Alternative Route D.	Increased risk of accidents associated with hazardous materials due to the increased length of the construction period and additional length of telecommunication line. Potential crossings of hazardous materials sites: • Closed land disposal site (Biogen Plant), buried underneath the Primm Valley Golf Course • Possible underground storage tank at the southeast quadrant of the I-15/Yates Well Road interchange in Nipton, California. This alternative could result in moderate, adverse direct impacts due to the potential of exposing potential contamination along this route.	Increased risk of accidents associated with hazardous materials due to the increased length of the construction period and additional length of telecommunication line. Potential crossing through Molycorp Mine, which is listed as a hazardous site (DTSC 2009). However, this portion of the telecommunication line would be an overhead wire. Mitigation would reduce the risks associated such that the impact would be minor, short term, and less than significant with mitigation, although incrementally greater than the proposed project.
HYDROLOGY AND WATER QUALITY	Impacts to hydrology would be localized and would range from minor to moderate intensity. Minor, localized, and short term impacts from the introduction of hazardous contamination into surface water resources during construction. These impacts would be less than significant after mitigation. Potential to alter the flow or degrade the quality of groundwater to natural systems or wells for private or municipal use would be less than significant. Groundwater at the proposed project site is between 100 and 500 feet below the surface. The potential for lowering local groundwater levels during construction would be negligible, localized, and short term.	Water resources and topography are similar to those of the proposed project. All impacts would be direct and adverse. Minor, localized, short-term impacts associated with surface and groundwater contamination. Minor to moderate extensive, long-term impacts associated with potentially lowering the local water table due to water use and redirection or	Water resources and topography similar to those of the proposed project. All impacts would be direct and adverse. Minor, localized, short-term impacts associated with surface and groundwater contamination. Impacts similar to those of Transmission Alternative A.	Water resources and topography similar to those of the proposed project. All impacts would be direct and adverse. Minor, localized, short-term impacts associated with surface and groundwater contamination. Impacts similar to those of the proposed project.	Water resources and topography similar to those of the proposed project. Transmission Alternative D is co-located with an existing transmission line through Ivanpah Dry Lake and, therefore, would not additionally contribute to the disturbance of surface drainage patterns on the dry lake bed. Impacts similar to those of the proposed project.	Same as Transmission Alternative D.	Impacts similar to those of the proposed project although there would be no additional contribution to the disturbance of surface drainage patterns on the dry lake bed. Impacts less than significant with mitigation.	Similar to the proposed project in that they are located in the same vicinity and would have similar impact on water resources. This alternative extends into the foothills of the Clark Mountain Range, while the proposed project route crosses the Ivanpah Valley.

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
	~~No impacts to groundwater quality because the depth to groundwater at the proposed project site is more than 500 feet.~~ Under CEQA, all impacts of the proposed project would be less than significant with mitigation measures; these impacts include: • Hazardous contamination into surface and groundwater; • Increased erosion or siltation due to alteration of surface drainage patterns and altered course of stream or river due to modification of surface drainage patterns; • Modified runoff characteristics and exposure to a significant risk of flooding and the modification of runoff characteristics, possibly leading of flooding or inundation by mudflow. Less than significant impacts without mitigation associated with lowering of water table or interference with aquifer recharge and placement of structures in a 100-year flood hazard area.	modification of flood flows by construction equipment or tower footings.						
LAND USE	Short-term, localized, negligible adverse impacts on the Ivanpah Dry Lake Recreation Area, the Jean/Roach Dry Lake SRMA, and the Hidden Valley grazing allotment due to construction. Construction of the substation would result in a long-term, localized, adverse negligible impact on the Clark Mountain Allotment. The proposed transmission line would be routed through the Boulder City Conservation Easement (BCCE) mostly in BLM corridors, and would also cross through land designated as the Ivanpah Airport Environs Overlay for the Southern Nevada Supplemental Airport (SNSA). After mitigation, the proposed project would have less than significant impacts on these land uses. ~~Construction of the proposed project could have adverse impacts on land uses within the BCCE and the Ivanpah Airport Environs Overlay area; however, impacts would be reduced with mitigation. Under CEQA, these potential conflicts would be less than significant with mitigation~~.	Transmission Alternative Route A would be constructed entirely within a BLM-designated utility corridor, thus avoiding potential conflicts with the BCCE. Impacts resulting from Transmission Alternative Route A would therefore be less than those from the proposed project.	Similar to Transmission Alternative Route A.	Alternative C would be constructed within allowable uses on BLM lands designated as Open Public Lands, a Nevada Department of Transportation Corridor, and private lands in unincorporated Clark County land designated as commercial land. Adoption of Transmission Alternative C would temporarily restrict access to one mining claim during construction.	Transmission Alternative Route D would have no impact on land use.	Same as Transmission Alternative Route D.	Adoption of this alternative would temporarily restrict access to one mining claim during construction; therefore, the Golf Course Alternative would have a short-term, negligible impact on mining in the area.	Adoption of this alternative would temporarily restrict access to four mining claims during construction; therefore, the Mountain Pass Alternative would have a short-term, negligible adverse impact on mining in the area.

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
	The proposed project would not divide an established community, nor would it conflict with Clark County MSHCP.							
NOISE	Minor adverse noise impacts due to project construction at residences at the Desert Oasis Apartment Complex. The operation and maintenance of the transmission line, substation, and telecommunication line would not result in adverse noise impacts. Less than significant impacts with mitigation associated with project construction noise. Less than significant impacts without mitigation from transmission line operation and maintenance noise, groundborne vibration, or groundborne noise due to construction activities or operations. No impacts would occur as a result of the project construction and operation and maintenance in the proximity of public airports, or from exposing people residing or working in the vicinity of a private airstrip to excessive noise levels.	Impacts similar to those of the proposed project. There would be no change to the proposed project route near sensitive receptors.	Impacts similar to those of the proposed project. There would be no change to the proposed project route near sensitive receptors.	Reduced potential construction noise impacts on the Desert Oasis Apartment Complex, compared with noise from the proposed project. Potential construction noise impacts associated with Transmission Alternative C would be minor and less than significant. The remaining impacts would be similar to those of the proposed project.	Transmission Alternative D would relocate a portion of the proposed transmission line away from the nearest sensitive receptor (Desert Oasis Apartment Complex). This relocation would likely result in a decrease in potential construction noise impacts on the Desert Oasis Apartment Complex; impacts would still be adverse and minor, but less than significant. The remaining impacts would be similar to those of the proposed project.	Same as Transmission Alternative D.	This alternative is located several miles from the Desert Oasis Apartment Complex and would not have any adverse noise impacts on this receptor or result in any other construction noise impacts. Operational noise impacts would not result in any adverse noise impacts. There would be no groundborne noise or vibration impacts during construction and operation of this alternative.	This alternative is several miles from the Desert Oasis Apartment Complex and would not have any adverse noise impacts on this receptor or result in any other construction noise impacts. Operational noise impacts would not result in any adverse noise impacts. There would be no groundborne noise or vibration impacts during construction or operation of this alternative.
PUBLIC SERVICES AND UTILITIES	Impacts on emergency response services (such as fire, police, and medical services) during construction would be short term and negligible with the implementation of mitigation measures. During operations, emergency response needs are expected to be similar to existing needs in the project area, and the applicant has included a number of security design features to ensure negligible impacts on police services due to the new Ivanpah Substation. ~~Potentially~~ Less than significant impacts associated with the temporary increase of water use would occur during construction~~ and increased long-term water consumption during operation.~~ The proposed project would require minimal or no water consumption during operations. Less than significant impacts with mitigation associated with solid waste generated during construction to comply with federal, state, or local statutes or regulations. No impact on the requirement of new or physically altered public facilities, compliance with requirements of the	Transmission Alternative Route A would reduce the length of the proposed project route. As a result, impacts on public services and utilities might differ slightly but would not be substantively different from those of the proposed project.	Transmission Alternative Route B would reduce the length of the proposed project route. As a result, impacts on public services and utilities might differ slightly but would not be substantively different from those of the proposed project.	Transmission Alternative Route C would reduce the length of the proposed project route. As a result, impacts on public services and utilities might differ slightly but would not be substantively different from those of the proposed project.	Negligible increase in the amount of solid waste generated from excavation activities and the amount of water required for dust suppression and cleaning. Impacts on public services and utilities would not be substantively different from those of the proposed project.	Same as Transmission Alternative Route D	Impacts similar to those of the proposed project. There would be a moderate increase in the amount of water required for dust suppression, cleaning, and other activities. The amount of solid waste from excavation activities and pole replacement would increase. Impacts on public services and utilities would not be substantively different from those of the proposed project.	Impacts similar to those of the proposed project. The amount of water required and solid waste generated would be slightly greater than under the Golf Course Telecommunication Alternative. The amount of solid waste from excavation activities and pole replacement would increase. Impacts on public services and utilities would not be substantively different from those of the proposed project.

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
	Regional Water Quality Control Board, or the need for new storm water drainage facilities.							
RECREATION	The proposed project would cross the Jean/Roach Dry Lake Recreation Area between MPs 10 and 27.5. Construction activities would be limited to the construction ROW and would be minor, short term, localized, and negligible. With mitigation, there would be no significant adverse effects on wilderness areas or recreational opportunities. No additional impacts on recreation or wilderness areas would occur as a result of project construction or as a result of operation and maintenance of the substation or telecommunications line. Less than significant impacts with mitigation related to disruption of access to existing recreation opportunities. No impacts associated with increased use of, or construction or expansion of, recreational facilities.	The potential construction and operation impacts on wilderness areas and recreational opportunities of this alternative would be similar to those of the proposed project.	The potential construction impacts on wilderness areas and recreational opportunities of Transmission Alternative Route B are similar to those of the proposed project.	This alternative would have construction impacts on wilderness areas and recreational opportunities similar to those associated with the proposed project, but this alternative would avoid construction impacts on Ivanpah Dry Lake. Construction impacts would be negligible and less than significant. There would not be any operational impacts associated with this alternative.	By reducing the transmission line footprint across Ivanpah Dry Lake, this alternative would leave more space for recreation, which would have a beneficial but negligible effect. Construction of this alternative would temporarily restrict access to the northwestern area of the Ivanpah Dry Lake Recreation Area, resulting in a short-term, moderate impact. With mitigation, this impact would be reduced to less than significant. There would not be any operational impacts associated with this alternative.	Same as Transmission Alternative Route D.	Installation of underground components during construction would not prohibit or restrict access to the Primm Valley Golf Club, but could result in temporary and minor impacts from noise and dust. Impacts would be minimized to negligible and less than significant through coordination with golf course management personnel. There would not be any operational impacts associated with this alternative.	The potential construction and operation impacts on wilderness areas and recreational opportunities of this alternative would be similar to those associated with the proposed project.
SOCIOECONOMICS, POPULATION AND HOUSING	Negligible, short-term, beneficial impact on the region's economy during construction and a negligible impact on area incomes during operation of the EITP. Localized, negligible, short-term, beneficial impact on the region's labor force and employment during construction and a negligible impact on labor during operations. Impacts on minority and low-income populations would be negligible, as would impacts on the tourism industry. No impacts have been identified for induced population growth, demand of permanent or temporary housing, or displacement of existing residences.	Socioeconomic conditions are similar in this area to those discussed for the proposed project route. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.	Socioeconomic conditions are similar in this area to those discussed for the proposed project route. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.	Impacts on the Desert Oasis Apartment Complex would be less than those of the proposed project. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.	Reducing the transmission line footprint across the Ivanpah Dry Lake would leave more open space for recreation, which would have a beneficial but negligible effect on the local economy. The socioeconomic conditions and impacts resulting from these alternatives would be similar to those for Transmission Alternative Route C.	Same as for Transmission Alternative Route D.	This alternative would incur increased costs associated with telecommunication line undergrounding construction, which requires a longer construction period. The applicant would coordinate with the owners of the Primm Golf Course to minimize disruption to the facility's operations. This alternative would not directly induce substantial population growth, displace existing residents or housing, result in disproportionately high or adverse impacts on minority or low-income populations, or necessitate the construction of housing, and no impacts would result.	In general, socioeconomic impacts would be similar to those of the proposed project. This alternative would not induce substantial population growth, displace existing residents or housing, result in disproportionately high or adverse impacts on minority and low-income populations, or necessitate the construction of housing, and no impacts would result.

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative
TRAFFIC AND TRANSPORTATION	Less than significant with mitigation, ~~D~~direct minor adverse ~~traffic impacts~~ impacts on traffic load and capacity, Level of Service (LOS) standard, and lane use ~~due to project construction access~~ along I-15 and SR 164/Nipton Road during project construction. The severity of the short-term impact would depend on the number of lanes closed, the duration of the closure, and the LOS conditions at the time of closure. ~~Impacts would be localized at construction yards and crossing points (MP 29) along the transmission line route and would be short term~~. While the proposed project would not impact existing air traffic, use of helicopters during operation and maintenance procedures could interfere with air traffic associated with the future SNSA. This impact would be less than significant with mitigation. Operation would not result in adverse traffic impacts. Maintenance activities associated with substations and transmission lines would not require additional vehicles beyond those used for current operations and maintenance procedures. Less than significant impacts without mitigation include those associated with ~~traffic load and capacity, level of service standard, and~~ emergency access, since the applicant would coordinate with local police and traffic engineers to plan appropriate access alternatives for temporary street closures and traffic disruption, if closures were required. No impact related to inadequate parking capacity; conflict with policies, plans, or programs supporting alternative transportation; change of air traffic patterns; or closure of major roads during construction.	Similar impacts to those of the proposed project.	Similar impacts to those of the proposed project.	Similar impacts to those of the proposed project.	Similar impacts to those of the proposed project.	Similar impacts to those of the proposed project.	Similar impacts to those of the proposed project.	Similar impacts to those of the proposed project.

Key:
AES = Aesthetics
APM = Applicant proposed measure
BCCE = Boulder City Conservation Easement
BLM = Bureau of Land Management
CEQA = California Environmental Quality Act
GHG = Greenhouse gas
KOP = Key observation point
kV = Kilovolt
MP = Milepost

Table 4-1 Comparison of Alternatives

ENVIRONMENTAL RESOURCE	Proposed Project	PROJECT ALTERNATIVES						
		Transmission Alternative Route A	Transmission Alternative Route B	Transmission Alternative Route C	Transmission Alternative Route D	Transmission Subalternative Route E	Golf Course Telecommunication Alternative	Mountain Pass Telecommunication Alternative

MSHCP = Multiple Species Habitat Conservation Plan
NEPA = National Environmental Policy Act
NRHP = National Register of Historic Places
ROW = Right-of-way
SFS = Stateline Fault System
SNSA = Southern Nevada Supplemental Airport
SR = State Route
SRMA = Special Recreation Management Area
VRI = Visual Resource Inventory
VRM = Visual Resource Management

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5. Cumulative Scenario and Impacts

5.1 Introduction

In accordance with CEQA (CEQA Guidelines Section 15130 et seq.) and NEPA (40 Code of Federal Regulations [CFR] 1508.25(c)), this Environmental Impact Report/Environmental Impact Statement (EIR/EIS) analyzes cumulative impacts of the EITP in conjunction with other developments that affect or could affect the project area. CEQA and NEPA have similar definitions of "cumulative impact." According to CEQA, the term refers to two or more individual effects that are considerable when taken together, or that compound or increase other environmental impacts (CEQA Guidelines Section 15355). CEQA requires the cumulative impacts discussion to reflect the likelihood that the impacts would occur and their severity if they did occur, but allows the discussion to contain less detail than must be provided for individual impacts. According to NEPA, a cumulative impact is the impact on the environment that results from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions (40 CFR Section 1508.7). To comply with both CEQA and NEPA, a cumulative scenario has been developed that identifies and evaluates projects that are reasonably foreseeable or that are already existing within the cumulative study area or that would be constructed or commence operation during the timeframe of activity associated with the proposed project. According to federal requirements, an adequate cumulative impacts analysis must not only describe related projects but must enumerate the environmental effects of those projects. In addition, the analysis must consider the interactions among these multiple activities. To comply with NEPA, an analysis of the aggregation of impacts of existing and reasonably foreseeable future projects in combination with the proposed action is provided.

5.2 Cumulative Projects

The projects that make up the cumulative scenario are located in close proximity to the EITP within the cumulative study area and are (1) completed, (2) approved and under construction, (3) approved but not yet under construction, or (4) proposed but not approved. A project is included in this cumulative analysis if information on the project was available in the BLM's database or identified during agency scoping or in another published cumulative analysis as of ~~December 31, 2009~~ July 30, 2010.[1]

The tables below list existing and reasonably foreseeable future projects within or near the Ivanpah and Eldorado valleys, including project status. These projects include renewable energy, transportation, infrastructure improvement, pipelines, and other projects. Table 5-1 lists projects considered in the cumulative analysis within or near the Ivanpah Valley in California, and Table 5-2 lists those within or near the Ivanpah and Eldorado valleys in Nevada. Figure 5-1 shows the locations of these projects. The letters and numbers in the figure correspond to those preceding the names of the projects as shown in Tables 5-1 and 5-2. Numbered projects are existing projects, and lettered projects are proposed projects. For example, "Project 7 – Colosseum Mine" is an existing project and "Project A – First Solar Photovoltaic Project" is a proposed project. Additional available information on each project is presented in Section 5.2.1, "Past and Present Projects/Existing Cumulative Conditions," and Section 5.2.2, "Reasonably Foreseeable Future Projects."

Table 5-3 summarizes the length of construction for projects that would or could overlap with EITP construction, including the size of the anticipated workforce during construction and operation. As discussed in Chapter 3, "Environmental Analysis," some identified impacts would occur only during construction of the EITP and would only contribute to cumulatively considerable impacts if the EITP was constructed concurrently with that project.

[1] The BLM and the CPUC chose this date as a reasonable cutoff to allow completion of this ~~draft~~ analysis.

Table 5-1 List of Projects Considered Within or Near the Ivanpah Valley in California

Map ID Letter or #, Project Name[3], and Application Number (if applicable)	Location (Distance from EITP and Valley in Which Project is Located)	Owner	Project Description	Project Type	Status
Existing Projects					
3 – Primm Valley Golf Course[1]	3 miles south of the CA/NV state line in California (Approximately 1 mile east of the EITP proposed route centerline at MP 32) Ivanpah Valley	Terrible's Primm Valley Casino Resorts (MGM Mirage)	An approximately 22-parcel (456-acre) golf course located south of the CA/NV border along I-15.	Recreation	Existing. Mitigated Negative Declaration was adopted in 1995. It was constructed in 1996 and 1997[5].
5 – Ivanpah Dry Lake Recreation Area[1]	Ivanpah Dry Lake (EITP crosses the Ivanpah Recreation Area between MP 29 and MP 31) Ivanpah Valley	BLM	The area is managed by the BLM Needles Field Office and used by recreationists for non-motorized recreational activities including, archery, kite buggying, and land sailing[1].	Recreation	Approximately 200 casual use permits are issued for various non-motorized recreational activities. Annually there are approximately 5,000 users for various activities, most of which are nonmotorized[6].
6 – Molycorp[4] Mine[1]	Mountain Pass, Sulphide Queen Property (Approximately 5 miles south/southwest of EITP)	Molycorp Mineral LLC[4]	Open pit rare-earths mining operation.	Mine	Ongoing, expected to continue until mid-2020. Long history of mining. Many releases of radiological contaminants .An EA is being prepared to install additional monitoring wells to determine extent of the groundwater plume[6].
7 – Colosseum Mine[1]	12 miles west of Primm, Nevada (approximately 6 to 7 miles from proposed Ivanpah Substation site)	Lac Minerals	Mining facilities occupy 284 acres on a 3,316 acre private parcel. Located within the East Mojave National Scenic Area and Clark Mountain ACEC. The area was mined for gold in an open pit.	Mine	Mine approved by BLM in 1984. Inactive as of early 1990s and closed in 1994.Remedial action undergone. BLM's Colosseum Mine files were transferred to the Mojave National Preserve in 1994[6].
9 – Molycorp Mine Evaporation Pond (Old and New)[1]	Southeast of the Ivanpah Dry Lake (Approximately 3.25 miles from EITP)	Chevron	Evaporation Pond for wastewater generated at the Molycorp[2, 4] rare-earths mining facility.	Evaporation Ponds	Neither pond is in use. Groundwater below the ponds is contaminated and is being monitored[8].
11– SCE Eldorado-Ivanpah 115-kV Transmission Line	Existing route that would be replaced by the proposed project	SCE	115-kV single circuit transmission line	Transmission Line	Existing transmission line in use.
12 – Molycorp[4] Wastewater Pipeline[1]	Runs from Molycorp[2,4] south of I-15, through the Mojave National Desert Preserve to the Evaporation pond (5.5 miles from EITP) Ivanpah Valley	Chevron	13-mile-long wastewater pipeline that runs between the Molycorp[2] mine and the evaporation pond.	Wastewater Pipeline	Entire wastewater pipeline is currently being pulled because it is contaminated internally (contaminating soils). A minimum of 70 releases have occurred from this pipeline. There have been multiple investigations of the pipeline, and there has been a removal of contaminated soils associated with the wastewater discharge. BLM issued the decision record for the Molycorp Waste Discharge Pipeline and Contaminated Soils Removal EA on 3/13/07. National Park Service, Mojave National Preserve issued a Special Use Permit authorizing activity to occur on NPS administered lands as well on 11/5/08[6].

Table 5-1 List of Projects Considered Within or Near the Ivanpah Valley in California

Map ID Letter or #, Project Name[3], and Application Number (if applicable)	Location (Distance from EITP and Valley in Which Project is Located)	Owner	Project Description	Project Type	Status
10 – AT&T Fiber Optic Cable Replacement[1]	Along the west side of the Ivanpah Dry Lake and of I-15 (EITP would cross the buried Fiber-optic cable at MP 32) Ivanpah Valley	AT&T	Existing direct buried fiber-optic cable will be replaced from Nevada border to the Halloran Summit, including a segment adjacent to the ISEGS project to the west of the Ivanpah Dry Lake to the project uses an existing 10-foot ROW.	Buried Fiber Optic Cable	Completed. This was a replacement in 2009. The EA/MND was completed in 2009[6].
18 Kern River Pipelines	North of Ivanpah SEGS	Williams Pipeline	Natural gas transmission lines	Natural Gas Transmission	Existing
20- I-15 Truck Descending Lane and Pavement Rehabilitation	I-15 near Wheaton Springs (approx. 5.5 miles from EITP route centerline at MP 34)	California DOT (CalTrans)	Addition of a truck-descending lane on the northbound side of I-15 between Bailey Road and Yates Well Road and improve the existing truck-climbing lane on the southbound side[11].	Road Improvement	Complete and open to traffic[10].
21- Clark Mountain and Crescent Peak Allotment 10 Year Lease CA-690-EA06-25	Northern Clark Mountain Range	Allotment #09003	Grazing Lease. Project would remove 4,065 acres of Clark Mountain Grazing Allotment.	Grazing Lease	
F – Caltrans Temporary Batch plant[1]	Located at Yates Well Road intersection within I-15 ROW (2.1 miles south/southeast of EITP) Ivanpah Valley	Caltrans	Temporary asphalt batch plant.	Asphalt Plant	This plant still exists and is located within freeway ROW[7]. The Temporary Batch Plant area was used for an expansion project and could be used for the Joint of Port Entry project. Contractor and construction workers could use their equipment[7]. There is no environmental documentation for this facility[7].
Foreseeable Projects					
C – DesertXpress	Along the I-15 between Victorville and Las Vegas (EITP would cross the train route at MP 29) Ivanpah Valley	DesertXpress Enterprises	Installation of 180 miles of train tracks for a commercial high-speed electric train that would operate between Victorville, CA and Las Vegas, NV. Construction commencement date TBD.	High Speed Train	Draft EIS was published in March 2009 and the public comment period ended on May 22, 2009. It is not known when the Final EIS or the ROD will be published; therefore, the construction commencement date is unknown[6].

Table 5-1 List of Projects Considered Within or Near the Ivanpah Valley in California

Map ID Letter or #, Project Name[3], and Application Number (if applicable)	Location (Distance from EITP and Valley in Which Project is Located)	Owner	Project Description	Project Type	Status
E – Joint Port of Entry (JPOE) (CA-690-EA06-01)[1]	Between Yates Well Road and Nipton Road, San Bernardino County. (2.5 miles south/southeast of the EITP) Ivanpah Valley	Caltrans, California Dept Food and Agriculture, California Dept of General Services, California Highway Patrol	The Joint Port of Entry would include an Agricultural Inspection Facility and a Commercial Vehicle Enforcement Facility located on 133 acres on the north side of I-15 between Nipton Road and Yates Well Road	Inspection Facility	Caltrans submitted a Recreation and Public Purposes Act Lease application to the BLM for the JPOE facility. Temporary Use Permit for Geotechnical Testing and soil sampling is in process. An environmental Negative Declaration is in preparation[7]. Caltrans is reconsidering proposal as a phased project based on funding availability. Re-evaluation of environmental documents (ND and FONSI) are being performed because these approved environmental documents are over 3 years old[7]. Therefore, EA is being processed to re-evaluate the previous environmental documentation[7]; ~~EA has not been completed[7]~~. EA is expected for public review in October 2010[9], a construction contractor should be awarded toward the end of 2010/beginning of 2011[10], construction is scheduled to begin in Spring 2011 and take approximately 19 months[9].
Foreseeable Renewable Energy Projects					
A – First Solar Photovoltaic Project (BLM ROW CACA 48669)[2]	Ivanpah, south of CA/NV border T17N/R14E (Intersects the proposed EITP route centerline between MPs 31 and 33) Ivanpah Valley	First Solar Development	300 MW photovoltaic project; 4,160 acres of land requested.	Solar Photovoltaic Plant	A modified application was filed on August 7, 2009. The POD submitted to BLM was inadequate. The length of time that will be required for the environmental review period is not known at this time[6].
J – Iberdrola Wind Project (BLM ROW CACA 44988)[2]	Between Mineral Mountain and I-15 in California (Approximately 6 miles south of proposed Ivanpah Substation)	Iberdrola Renewables	75 MW wind energy project; 2,330 acres; Military: Red	Wind	ROW issued for 3 MET towers expired December 31, 2009. Cost recovery was finalized for the MET towers on August 12, 2008. The Categorical Exclusion was completed at the Needles Field Office[6].
K – ISEGS Project (BLM ROW 048668, 049502, 049503, 049504, and 049508)[2]	4 miles south of the CA/NV border in CA (Intersects the proposed EITP route centerline between MPs 33 and 34) Ivanpah Valley	Solar Partners I LLC	Ivanpah 2 Project (ISEGS); increased acreage December 14, 2006 (4,073 acres); related files 049502, 049503, 049504; modified to 3,564 acres	Solar	ROW application pending. The Draft EIS was published. A Supplemental DEIS is was published on April 16, 2010[6].

Table 5-1 List of Projects Considered Within or Near the Ivanpah Valley in California

Map ID Letter or #, Project Name[3], and Application Number (if applicable)	Location (Distance from EITP and Valley in Which Project is Located)	Owner	Project Description	Project Type	Status

Sources/Notes:

[1] CEC and BLM 2009

[2] BLM 2009

[3] In the absence of a known project name, projects are named according to the owner/developer and the type of facility or structure proposed.

[4] Molycorp is a subsidiary of Chevron-Texaco Corporation.

[5] Williams 2010

[6] Meckfessel 2010

[7] Caltrans 2010

[8] Hunter 2010

[9] Bennecke 2010

[10] Watkins 2010

[11] CalTrans 2010a

Table 5-2 List of Projects Considered Within or Near the Ivanpah and Eldorado Valleys in Nevada

Map ID Letter or #, Project Name[6], and Application Number (if Applicable)	Location (distance from EITP and Valley in which Project is located)[5]	Owner	Project Description	Project Type	Status
Existing Projects					
1 – Bighorn Electric Generating Station[1]	Primm, NV (Approximately 0.5 miles east of the proposed EITP route centerline at MP 27) Ivanpah Valley	Reliant Energy Wholesale Generation, LLC	Operating 570 MW natural gas power plant; uses dry cooling system	Power Plant	Existing. This facility was constructed in 2004[7].
2 – Primm Casinos: Buffalo Bill's, Primm Valley, Whiskey Pete's[1]	31900 Las Vegas Blvd. South, Primm, NV (Approximately 0.5 miles west of the proposed EITP route centerline at MP 28) Ivanpah Valley	Terrible's Primm Valley Casino Resorts (MGM Mirage)	Two existing resort/casinos and one existing hotel/casino	Casino/Resort	Existing. Whiskey Pete's was constructed in 1977[7]. Buffalo Bill's was constructed in 1994[7]. Primm Valley Casino was constructed in 1998[7].
4 – Primm Outlet Mall[1]	32100 Las Vegas Blvd. South, Primm, NV (Approximately 0.5 miles west of the proposed EITP route centerline at MP 28) Ivanpah Valley	Fashion Outlets (MGM Mirage)	Existing shopping outlet with over 100 stores. Connected to the Primm Casinos by monorail, approximately 359,000 square feet of leasable area and 1,600 parking spaces. More than one million vehicles pass the Outlet Mall per month.	Shopping Mall	Existing. The mall was constructed in 1998[7].
8 – Desert Oasis Apartment Complex[2]	Primm, NV (Immediately adjacent to the north side of the proposed EITP route centerline at MP 28) Ivanpah Valley	MGM Mirage	Gated community comprised of 52 buildings to house 650 Primm casino/resort employees. Includes laundry facilities, a 10,000-square-foot market, clubhouse, swimming pool, fitness facilities, and basketball court.	Residential Units	Existing. The complex was constructed in 2004[7].
13 – Jean/Roach Dry Lake SRMA[12]	The proposed project would cross the Jean/Roach Dry Lake Recreation Area between MPs 10 and 27.5 Ivanpah Valley	BLM	Jean/Roach Dry Lake Recreation Area provides opportunities for casual use and other types of recreation, including motorcycling, all-terrain vehicle and 4 x 4 driving, horseback riding, mountain biking, small-game hunting, and organized racing events.	Recreation	Existing.
~~14 – Southern Nevada Supplemental Airport (SNSA)[1]~~	~~30 miles south of the McCarran International Airport (Less than one mile from the EITP at MP 26)~~ ~~Ivanpah Valley~~	~~Clark County Department of Aviation~~	~~Site reserved for a new International Airport to supplement the McCarran International Airport in Las Vegas; 5,934-acre site; adjacent to desert tortoise relocation site.~~	~~Airport~~	~~While the SNSA has not been approved or constructed, the South County Land Use Plan contains policies related to the SNSA, and the land is considered reserved for the future airport. The SNSA is currently on hold. Currently, a Draft EIS is in progress and is expected to begin construction in 2014. The Scoping Report and Draft Alternatives Working Paper are available. Construction is~~

Table 5-2 List of Projects Considered Within or Near the Ivanpah and Eldorado Valleys in Nevada

Map ID Letter or #, Project Name[6], and Application Number (if Applicable)	Location (distance from EITP and Valley in which Project is located)[5]	Owner	Project Description	Project Type	Status
					~~expected to begin 2014[9].~~
15 – El Dorado Combined Cycle Power Plant	Boulder City, NV (Within 1 mile of the EITP route at MP 0) Eldorado Valley	Sempra Energy	480-MW natural gas fired power plant located on 138-acres of land 17 miles southwest of downtown Boulder City and 40 miles southeast of Las Vegas.[11]	Power Plant	Existing. Operational since May 2000.[11]
16 – Nevada Solar One Project[3]	Boulder City, NV (Approximately 1.7 miles east of the proposed EITP route centerline at MP 0; approximately 1.6 miles east of Alternative B MP 0) Eldorado Valley	Acciona/ Solargenix Energy	64 MW concentrating solar power (CSP) plant on 400 acres.	Solar	Existing. Operating since June 2007. No environmental review was completed for this project because the site is located on City land, and no federal regulations applied. Therefore, NEPA was not triggered[8].
17 – Kentucky Fried Chicken/Taco Bell[1]	Primm, NV; (Approximately 0.5 miles west of the proposed EITP route centerline at MP 28) Ivanpah Valley	Kentucky Fried Chicken/Taco Bell	Fast food restaurant to be built adjacent to the Primm Outlet Mall 32100 Las Vegas Blvd. South)	Restaurant	Existing. The Design Review application was approved March 2008. Construction was completed in 2009[7].
19 – Goodsprings Waste Heat Recovery Plant	Near Goodsprings, Nevada, (approx. 9.5 miles northwest of the EITP route centerline at MP 20) Ivanpah Valley	NV Energy	6 MW waste heat from the Kern River pipeline compressor station in Goodsprings will be used to turn turbines and generate electricity[18]	Waste Heat Power Plant	Construction is scheduled to be completed in October 2010[19].
Foreseeable Projects					
B – SNSA Ivanpah Airport Environs Overlay[1]	30 miles south of the McCarran International Airport (Covers much of the land along the proposed EITP route centerline between Primm and Jean, NV [approximately MPs 18 to 28]) Ivanpah Valley	Clark County Department of Aviation	International Airport to supplement the McCarran International Airport in Las Vegas; 17,000-acre sphere of influence; adjacent to desert tortoise relocation site.	Airport	As stated above, the site of the future SNSA is considered reserved for the project. The additional land for the Ivanpah Airport Environs Overlay is conditional on project approval. However, the SNSA has been placed on hold. ~~Draft EIS in progress and expected to be published in 2013. The Scoping Report and Draft Alternatives Working Paper are available. Construction is expected to begin 2014[9].~~
14 – Southern Nevada Supplemental Airport (SNSA)[1]	30 miles south of the McCarran International Airport (Less than one mile from the EITP at MP 26) Ivanpah Valley	Clark County Department of Aviation	Site reserved for a new International Airport to supplement the McCarran International Airport in Las Vegas; 5,934-acre site; adjacent to desert tortoise relocation site.	Airport	While the SNSA has not been approved or constructed, the South County Land Use Plan contains policies related to the SNSA, and the land is considered reserved for the future airport. The SNSA is currently on hold. [9].

Table 5-2 List of Projects Considered Within or Near the Ivanpah and Eldorado Valleys in Nevada

Map ID Letter or #, Project Name[6], and Application Number (if Applicable)	Location (distance from EITP and Valley in which Project is located)[5]	Owner	Project Description	Project Type	Status
S – Calnev Pipeline Expansion Project	Parallel to I-15 (Crosses the proposed EITP route centerline near MP 27) Ivanpah Valley	Kinder Morgan	Expansion of the current pipelines owned and operated by Kinder Morgan that run between Colton, CA and Las Vegas, NV.	Petroleum Product Pipeline	The Calnev Project currently comprises an 8-inch and a 14-inch pipeline. This project is in NEPA analysis stage for the addition of a 16-inch pipeline. Only the SF-299 is available. The NOI was published March 13, 2008. A Draft EIR/EIS is in the process of being completed.
Foreseeable Renewable Energy Projects					
Q – NextLight Silver State Solar Project (BLM ROW NVN 085077 and NVN 085801)[4]	Approximately 1 mile east of Primm, NV (NVN 085801 bisects the proposed EITP route centerline near MP 26 and NVN 085077 is approximately 1 mile southeast of the EITP centerline nearest to MP 27) Ivanpah Valley Approximately 2 miles east of Primm, NV (NVN 085077 is approximately 1 mile southeast of the EITP centerline nearest to MP 27) Ivanpah Valley	NextLight Renewable Power LLC	Silver State Solar Project NVN 085077: 500 MW photovoltaic power plant on 4,700 acres. NVN 085801: 200 MW photovoltaic power plant on 2,560 acres with an additional 600 acres producing 50 MW to be added with ROW grant. Three photovoltaic power plants totaling 400 MW on 2,967 acres.	Solar	Revised POD combining NVN 085077 and NVN 085801 submitted in November 2009. The ROW grant application is pending. The Draft EIS will be published in Spring 2010. Initially, two ROW applications were submitted, for NVN 085077 and NVN 085801; a revised POD combining the two was submitted in November 2009. The ROW grant application is pending. The Draft EIS was published in April 2010 (see http://edocket.access.gpo.gov/2010/pdf/2010-8627.pdf for Notice of Availability).
Z – Oak Creek Energy System Project (BLM ROW NVN-083041 and BLM ROW NVN-073726)[4] T – Table Mountain Wind Project (BLM ROW NVN-082729)[4]	Approximately 5 – 10 miles east of Sandy Valley near Goodsprings, NV border (Approximately 8 miles northwest of the proposed EITP route centerline at MP 21) Eldorado Valley Approximately 3 miles west of US Hwy 95 along CA/NV (Approximately 9 miles southeast of the proposed EITP route centerline at MP 26) Ivanpah Valley	Table Mountain Wind Co LLC Oak Creek Energy Systems	Installation and operation of two MET towers on 11,570 acres to gather data for a potential wind generation site. Total project footprint is approximately 30 acres. Project will take place through December 31, 2012 when current ROW expires. Installation and operation of 10 MET towers on 34,456 acres to gather data for a potential wind generation site. Project footprint approximately 6 acres.	Wind	ROW issued for 10 MET towers through December 31/2012. Currently an EA for the MET towers was completed 1998. The construction of the MET towers was completed in 1998. EIS was completed in 2002 but no ROD was adopted.[9] Supplemental EIS is required before ROD can be adopted.[10] ROW issued for MET towers, expires December 31, 2010. The EA, pending information from the FAA, is being completed for the construction of 2 MET Towers; no expected date for the document is available.[13]
Z – Oak Creek Energy System	Within 1 mile of Searchlight, NV (Approximately 5 – 10 miles west of	Searchlight Wind Energy Corp	Installation and operation of five MET towers on a 24,382 acre ROW to gather	Wind	The POD review for the project (Site Type 3 application) and not the MET Towers, was completed in August 14,

Table 5-2 List of Projects Considered Within or Near the Ivanpah and Eldorado Valleys in Nevada

Map ID Letter or #, Project Name[6], and Application Number (if Applicable)	Location (distance from EITP and Valley in which Project is located)[5]	Owner	Project Description	Project Type	Status
CC – Searchlight Wind Project (BLM ROW NVN-082729 ~~082648 and 084626~~)[4]	~~US Hwy 95 along CA/NV border (Approximately 9 miles southeast of the proposed EITP route centerline at MP 26)~~ ~~Eldorado Valley~~ Approximately 19 miles southwest of the proposed EITP route centerline at MP 7) Eldorado Valley	Oak Creek Energy Systems	~~data for a potential wind generation site. Project footprint would be approximately 15 acres. Project would take place through December 31, 2012 when current ROW expires.~~ Installation and operation of two MET towers on 34,456 acres to gather data for a potential wind generation site. Project footprint is approximately 6 acres. Project will take place through July 1, 2010 when current ROW expires.		~~2009[9]. ROW issued for 5 MET towers, expires 12/31/2012. Currently an EA is being completed for the construction of 2 MET Towers[9].~~ ROW issued for MET towers expires July 1, 2010. A Draft EIS in scheduled to be published in May 2010[9]. A review of the resubmitted POD is currently under review and the BLM anticipates the project may be on hold until December, 2010[14].
CC – Searchlight Wind Project (BLM ROW NVN-082648 and 084626)[4]	Within 1 mile of Searchlight, NV (Approximately 19 miles southwest of the proposed EITP route centerline at MP 7) Eldorado Valley	Searchlight Wind Energy Corp	Installation and operation of five MET towers on a 24,382 acre ROW to gather data for a potential wind generation site. Project footprint would be approximately 15 acres. Project would take place through July 1, 2010 when current ROW expires.	Wind	The POD review for the project (Site Type 3 application) and not the MET Towers, was completed in August 14, 2009[9]. ROW issued for 5 MET towers expires July 1, 2010. A Draft EIS in scheduled to be published in May 2010[9].
DD – Bull Frog Green Energy Solar Project (BLM ROW NVN 085117)[4]	East of US Hwy 95, approximately 8.5 miles south of Boulder City, NV (Approximately 7 miles southeast of the proposed EITP route centerline at MP 0) Eldorado Valley	Bull Frog Green Energy LLC	Solar power plant on 3,639 acres.	Solar	ROW grant application is currently pending. No POD has been submitted, so the NEPA process has not been initiated[9].
FF – Cogentrix Solar Project (BLM ROW NVN 085611)[4]	Approximately 3 miles south/southeast of Boulder City, NV (Approximately 5.5 miles east of the proposed EITP route centerline at MP 0) Eldorado Valley	Cogentrix Solar Services LLC	Solar thermal power plant on 640 acres.	Solar Thermal	Overlaps ROW NVN 085117. ROW grant is currently pending. The project is currently on hold, and if the applicant chooses to move forward it will not be until 2011[9].
JJ – Power Partners Solar Project (BLM ROW NVN 086158)[4]	Approximately 12 miles south of Boulder City, NV (Approximately 9 miles southeast of the proposed EITP route centerline at MP 7) Eldorado Valley	Power Partners SW LLC	250 MW solar power plant on 3,885 acres.	Solar	ROW application received September 18, 2008, and is pending. The project is currently on hold, and if the applicant chooses to move forward it will not be until 2011[9].
I - Cogentrix NVN 083083 and 083129	1 – 3 miles south and east of Jean, NV (EITP route centerline crosses	Cogentrix Solar Services LLC	Solar thermal energy facility for approximately 9.760 acres (1,000 MW)	Solar	Applications for both ROWs were received 1/18/07; both projects pending, BLM made last contact with Cogentrix

Table 5-2 List of Projects Considered Within or Near the Ivanpah and Eldorado Valleys in Nevada

Map ID Letter or #, Project Name[6], and Application Number (if Applicable)		Location (distance from EITP and Valley in which Project is located)[5]	Owner	Project Description	Project Type	Status
		the southwest corner of NVN 083083 between MP 21 and 22 and bisects NVN 083129 between MPs 13 and 19) Ivanpah Valley		and 19,840 acres (1,200 MW) respectively. Mining claims identified in the same area.		8/27/2008 requesting revised new POD using the BLM template.[17]
W -	TransWest Express Transmission Project	Wyoming, Colorado, Utah, and Nevada; terminating near the Eldorado Substation. Eldorado Valley	TransWest Express, LLC.	660 kV DC transmission line running from central WY to southern NV as associated facilities, with the transmission line entering the state north of Mesquite and terminating southwest of Boulder City, NV.	Transmission	Application for an ROW submitted to the BLM construction anticipated to begin in 2015.
Z – [4]	Oak Creek Energy System Project (BLM ROW NVN-083041 and BLM ROW NVN-073726)[4]	Approximately 3 miles west of US Hwy 95 along CA/NV (Approximately 9 miles southeast of the proposed EITP route centerline at MP 26) Ivanpah Valley	Oak Creek Energy Systems	Installation and operation of 10 MET towers on 34,456 acres to gather data for a potential wind generation site. Project footprint approximately 6 acres.	Wind	ROW issued for MET towers, expires December 31, 2010. The EA, pending information from the FAA, is being completed for the construction of 2 MET Towers; no expected date for the document is available.[13]

Sources/Notes:

[1] CEC and CEC 2009

[2] Las Vegas Review Journal 2004

[3] Acciona 2009

[4] ~~BLM 2009~~ BLM 2010a

[5] Distance to the proposed project were calculated using Southern California Edison 2009. Eldorado-Ivanpah Project Road Story Version 3 [In GIS Format]. Data Request: EITP-CPUC-SCE-001 Follow Up. CD-ROM 1 of 4.

[6] In the absence of a known project name, projects are named according to the owner/developer and the type of facility or structure proposed.

[7] Clark County Comprehensive Planning Department 2010

[8] Ann 2010

[9] Meckfessel 2010

[10] Mojave-Southern Great Basin Resource Advisory Council 2007

[11] Sempra Generation n.d.

[12] BLM 2007

[13] Wilhight 2010

[14] Helseth 2010

[15] Chandler 2010

[17] DOI 2010

[18] NV Energy 2010

[19] Robison 2010

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LABEL	NAME	STATUS	Acreage*
1	Bighorn Electric Generating Station	Existing	86.9
2	Primm Casinos	Existing	127.8
3	Primm Valley Golf Course	Existing	531.3
4	Primm Outlet Mall	Existing	38.7
5	Ivanpah Dry Lake RA	Existing	12,855.3
6	Molycorp Mine	Existing	862.4
7	Colosseum Mine	Existing	289.9
8	Desert Oasis Apartments	Existing	13.5
9	Molycorp Mine Evaporation Pond	Existing	355.5
10	AT&T FiberOptic Cable	Existing	NA**
11	SCE 115 kV Transmission Line	Existing	NA**
12	Molycorp Wastewater Pipeline	Existing	NA**
13	Jean/Roach Dry Lake SRMA	Existing	224,931.4
14	SNSA	Pending	5,996.6
15	El Dorado Energy Combined Cycle Power Plant	Existing	138.2
16	Nevada Solar One	Existing	400.5
17	KFC/Taco Bell	Existing	3.6
18	Kern River Pipeline	Existing	NA**
19	Goodsprings Waste Heat Recovery Plant	Existing	565.8
20	I-15 Mountain Pass Truck Lane	Existing	NA**
21	Clark Mountain and Crescent Peak Allotment Lease	Existing	236,723.2
A	First Solar Development	Pending	5,433.4
B	SNSA Ivanpah Airport Environs Overlay	Pending	16,579.6
C	Desert Xpress	Pending	NA**
CC	Searchlight Wind Energy Corp	Pending	19,886.7
DD	BullFrog Green Energy	Pending	3,352.2
E	Joint Port of Entry	Pending	324.7
F	Temporary Batch Plant	Existing	32.4
FF	Cogentrix Solar Services	Pending	640.8
I	Cogentrix Solar Services	Pending	29,271.6
J	Iberdrola Renewables	Pending	1,872.6
JJ	Power Partners SW	Pending	3,874.0
K	Brightsource ISEGS	Pending	3,564.5
Q	Nextlight Renewable Power	Pending	2,967.0
S	CalNev Pipeline Expansion Project	Existing/Pending	NA**
W	Transwest Transmission Line	Existing	NA**
Z	Oak Creek Energy Systems/Desert Research Inst	Pending	35,530.5

* Cumulative project areas are approximated reflecting the project right-of-way and not necessarily the actual or final project boundary footprint.

** Linear projects not included when calculating overall disturbance acreages.

SOURCE: See source list for Table 5-1 and Table 5-2.

Figure 5-1
Eldorado-Ivanpah Transmission Project
Cumulative Projects

- Study Area
- Cumulative Linear Project
  - Existing
  - Existing/Pending
  - Pending
- Cumulative Project Area by Type
  - Solar
  - Wind
- Cumulative Project Area by Status
  - Approved/Existing
  - Pending
- Ivanpah Airport Environs Overlay
- PROPOSED PROJECT
  - Transmission Line
  - Telecommunications Line
  - Redundant Telecommunications Line
  - Microwave
- ALTERNATIVES
  - Transmission Line Alternatives
  - Redundant Telecommunications Line - Mountain Pass
  - Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- County Highway
- State Highway
- Interstate
- Railroad
- Dry Lake Bed
- Valley Boundary
- Boulder City Conservation Easement
- Desert Conservation Program
  - Restoration Surveys, Restored Trail and Weed Monitoring
  - Restoration and Weed Monitoring Location
  - Restoration Area
  - Closed Road
  - Open Road

0 1 2 3 4 5 Miles

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Table 5-3 Estimated Construction Periods and Workforce for Some Large Foreseeable Projects in the Cumulative Area

Project Name	Estimated Construction Period/Year(s) of Construction	Construction Overlap with EITP	Workforce during Construction	Workforce during Operation
DesertXpress[1]	2 years / 2010–2012	Yes	1,730–3,000 per year	700
Southern Nevada Supplemental Airport (SNSA)[2]	Unknown	No	12,000–13,000	4,000
ISEGS Solar Energy Project[3]	4 years / 2010–end of 2013	Yes	474–959 peak daily	90
First Solar Project	Unknown/Unknown	Potentially	474–959 peak daily[4]	90[4]
NextLight Silver State Solar Project	4 years / late 2010–fall 2014	Yes	350 peak daily[5]	15[5]
4 Other Solar Power Projects Planned in the Ivanpah and Eldorado Valleys	8 months / Unknown	Unlikely	1,916–3,836 total for all projects[4]	360 total for all projects[4]
3 Wind Power Projects Planned in the Ivanpah and Eldorado Valleys	Approximately 4 years per project / variable by project	Potentially	450 total for all projects[5]	9 total for all projects[5]
Calnev Pipeline Expansion Project[6]	12 months / unknown	Potentially	250–300	Unknown
Joint Port of Entry (JPOE)[7]	19 months / Spring 2011–Fall 2012	Yes	Unknown	Unknown
TransWest Express Transmission Project	Unknown/beginning 2013	Potentially	1,000 over the entire line	Unknown

The following subsections provide additional information about the past, present, and reasonably foreseeable future projects and their potential impacts. Section 5.3 provides an analysis of the cumulative impacts of these projects and the proposed project.

5.2.1 Past and Present Projects / Existing Cumulative Conditions

5.2.1.1 California

The portion of the EITP that would be built within California is located in the eastern portion of the Mojave Desert in San Bernardino County. The area contains mountainous regions and valleys and is sparsely populated. The Ivanpah Valley floor is desert with prominent features including Interstate 15 (I-15), the Primm Valley Golf Course, and Ivanpah Dry Lake. I-15 bisects Ivanpah Valley and is the main highway between the Los Angeles area and Las Vegas. It passes by Mountain Pass on the western edge of the Molycorp Mine and drops into and crosses the valley floor between Ivanpah and Nipton. I-15 divides natural habitats north and south and is a permanent feature of the Ivanpah Valley. I-15 facilitates commercial, recreational, and tourism travel but contributes to traffic, noise, and air pollution. It has also permanently altered drainage patterns on the valley floor.

The Primm Valley Golf Course (Cumulative Project 3) was built over a former landfill in the late 1990s and opened in 1997 with additions in 1998. It includes an 18-hole desert course, an 18-hole lake course, practice facilities, a full-service restaurant and lounge, and a clubhouse (PrimmNevada.net 2010). As the only permanent green feature, the Primm Valley Golf Course contrasts significantly with the neutral tones of the remainder of the valley. The facility's long-term need for water has altered the hydrology of the valley and permanently altered drainage patterns on the valley floor. While the facility has provided a recreational opportunity in the Ivanpah Valley, it has also eliminated habitats that once existed there.

The Ivanpah Dry Lake Recreation Area (Cumulative Project 5) extends southwest from Primm, Nevada, and covers almost 13 square miles in California. The dry lake bed is managed by the BLM and is popular for land sailing and kite buggying (PrimmNevada.net 2010) but is closed to motorized vehicles. Free permits are required to access the site for recreation, and commercial or organized events require special recreation permits (BLM 2010). The Ivanpah Desert Wildlife Management Area (DWMA), an overlay to Ivanpah Dry Lake, is south of the EITP and east of I-15. Some areas allow camping, but land sailing is not permitted in the southern half of the dry lake, which is primarily used for very low-level, widely dispersed motorized recreational activities (BLM 2002). Although Ivanpah Dry Lake is not developed, and therefore natural habitat is still present, the presence of recreationists has probably altered how wildlife use the area.

Much of the land in the Ivanpah Valley is managed by the BLM through grazing allotments and recreation areas; however, some lands have special designations, including the Mojave National Preserve, three wilderness areas (Wee Thump, Joshua Tree, and South McCullough), and Areas of Critical Environmental Concern (ACECs; see Section 3.9, "Land Use").

The Molycorp Mine and landfill (Cumulative Project 6) are located in Mountain Pass, California, in the mountains above the Ivanpah Valley. It is an active lanthanide mining and milling operation with a wastewater pipeline—**Molycorp Wastewater Pipeline** (Cumulative Project 12)—that extends from the mine, running east for 10 miles along Nipton Road and then turning north and running 3 more miles into Ivanpah Dry Lake. Between 1980 and 1998, the pipeline discharged wastewater to two evaporation ponds located on Nipton Road and in the Ivanpah Dry Lake (**Molycorp Mine Evaporation Pond** [Cumulative Project 9]). The pipeline is being removed, along with any residual soil contamination, beginning with the part that crosses National Park Service property. An agreement with the Regional Water Quality Control Board (RWQCB) requires cleanup and abatement of contaminated groundwater that developed below the two evaporation ponds (DSTC 2009, Cass 2010, and Hunter 2010). The drum yard at the mine facility was used to store and stage drummed lead containing filter cake waste generated on site. The concrete casting and staging area was used in a pilot test in the early 1990s to stabilize the lead containing filter cake in concrete. Under a 1994 settlement, Molycorp agreed to close the drum yard and casting and staging areas, removing all drummed wastes and closing all lead waste impacted areas. By the end of 2003, the Department of Toxic Substances Control's (DTSC's) Geology, Permitting, and Corrective Action Branch accepted the closure certification of these units and released Molycorp from financial responsibility for further closures (DTSC 2010). The facility is still operating and contributes to air emissions in the area (U. S. Environmental Protection Agency [EPA] 2010). It uses, stores, and discharges waters, and thus it has altered the hydrology of the area. It has also altered the terrain on which it sits, and thus the majority of the facility is unsuitable habitat for wildlife. Portions of the facility are visible from I-15 and have therefore altered the natural landscape. The Mountain Pass Telecommunication Alternative would cross the mine and follow the route of the wastewater discharge pipeline along Nipton Road.

The Colosseum Mine (Cumulative Project 7) occupies 284 acres approximately 5 miles north of the Mountain Pass substation but is no longer in operation. Formal mining operations began in 1987 (U.S. EPA 1992) and continued until 1993, producing approximately 7,000 ounces of gold per month. The mine was acquired in 1990 by Lac Minerals of Canada, and the company has paid more than $30 million for site reclamation (Jessey 2010). Like the Molycorp Mine, the Colosseum Mine has permanently altered the landscape and habitat on which it sits; however, it is not operating, so it is not using or discharging water or generating emissions. Also, it is more remote than the Molycorp Mine and cannot be seen easily from the Ivanpah Valley or I-15.

The **CalTrans Truck Descending Lane (Cumulative Project 20)** project consists of 12.1 miles of improvement between Bailey Road and Yates Well Road, including the addition of a truck-descending lane on the northbound side and improvements to the existing truck-climbing lane on the southbound side, replacement of the existing southbound truck-climbing lane with concrete pavement, widening and re-paving of the existing lanes and median on both northbound and southbound sides, a bridge over crossing pavement profile adjustments, improvement of lighting conditions, rehabilitation of local interchange ramps, and extending and rehabilitating the existing drainage system to reduce the potential for flooding. Safety upgrades, such as guardrails and transition railings, will also be added (CalTrans 2010a).

Kern River Natural Gas Pipeline (Cumulative Project 18). The Kern River Gas Transmission Company's (Kern River's) natural gas pipeline system crosses portions of the Ivanpah Valley in Clark County, Nevada and San Bernardino County, California (see Figure 5-1). The Kern River system extends nearly 900 miles from supply interconnects near Opal Wyoming, crossing portions of Utah, Nevada, and California to the Bakersfield area. The original 36- and 42-inch pipeline transmission system began operations in 1992. Kern River expanded its system in 2003 (Federal Energy Regulatory Commission (FERC) Docket No. CP01-31 and in 2003 under FERC Docket No. CP01-422-000). The 2003 Expansion Project involved constructing a new 36-inch-diameter pipeline loop in the project area with modifications to the existing Goodsprings compressor station in Cark County, Nevada. The pipeline loop and the existing mainline are generally located in a 75-foot-wide common ROW. Currently, there are two 36-inch natural gas pipelines within the ROW in the Ivanpah Valley area.

In 2010, Kern River also received authorization under FERC Docket No. CP08-429-000 to increase the maximum allowable operating pressure up to 1,333 psig, resulting in a current natural gas transmission capacity of 1,876,126 dekatherms per day, or about 1.82 billion cubic feet per day of natural gas. Kern River also has an application pending with the FERC (Apex Expansion Project) under Docket No. CP10-14-000 to loop a portion of its existing mainline in Utah and add additional compression in Wyoming, Utah and Clark County, Nevada to provide an additional incremental capacity to the Las Vegas area of 266,000 dekatherms per day. The Apex Expansion Project would not result in any new construction by Kern River to the west and south of Las Vegas.

Clark Mountain and Crescent Peak Allotment 10-Year Lease CA-690-EA06-25
As discussed in Section 3.9, "Land Use," the Clark Mountain Allotment is an open grazing allotment and is currently in use (Bartz 2009). The Clark Mountain allotment includes 97,848 acres of public land zones in Ivanpah and Mesquite Valleys in San Bernardino County.

5.2.1.2 Nevada

In Nevada, as in California, the Ivanpah and Eldorado valleys are sparsely populated. The closest community to the proposed project is Primm, Nevada. Primm is an unincorporated community in Clark County along the California border, 40 miles south of Las Vegas on heavily traveled I-15. The town covers approximately 880 acres and has a population of about 1,000 residents. Originally named "Stateline" after a gas station built in the area in the 1920s, the town was renamed "Primm" in 1996.

Primm is a popular stop for visitors from California and is both a destination in its own right and a rest spot between Las Vegas and Los Angeles. In 2004, an apartment building called the **Desert Oasis Apartments** (Cumulative Project 8) was constructed to house employees (PrimmNevada.net 2010) for three **Primm Casinos** (Cumulative Project 2): Buffalo Bill's Resort Casino, Terrible's Primm Valley Resort, and Whiskey Pete's Hotel Casino, which has 2,642 hotel rooms. All three casinos are owned by Primm Valley Resorts. Additionally, a **KFC/Taco Bell** (Cumulative Project 17) recently opened in Primm, and the **Primm Outlet Mall** (Cumulative Project 4) has over 100 retail stores (Primm Nevada.net 2010). The casinos, hotels, and mall have led to increased population, with impacts to the area similar to those of other small towns. For example, traffic on I-15 is heaviest on Fridays, and air quality in the area does not meet certain ambient air quality standards (see Section 5.3.2, "Air Quality and Greenhouse Gases"). Noise is generated by activities in town, and natural habitat has been removed. Most of the facilities require the use of water and therefore draw on the local aquifers. The presence of the town has permanently altered the drainage patterns in the area.

A little more than 1 mile northeast of the center of Primm, **the Bighorn Electric Generating Station** (Cumulative Project 1) consists of two 159-megawatt (MW) natural gas turbines, each equipped with a natural gas duct burner that operates at 650 million British thermal units per hour (MMBtu/hr), a 40-MMBtu/hr natural gas auxiliary boiler, and a 500-horsepower diesel emergency generator. The presence of this facility has facilitated the growth of Primm, contributed to emissions and noise in the area, and removed natural habitat. The facility also likely draws on the local aquifer. The Bighorn Electric Generating Station has a Title V operating permit, and the maximum potential emissions

for the facility in tons per year are 114.91 of PM_{10}, 157.91 of NO_X, 194.07 of CO, 10.52 of SO_2, 43.51 of VOC, 10.31 of HAP, and 230.30 of NH_3 (Reliant 2005).

The Jean/Roach Lake Special Recreation Management Area (SRMA; Cumulative Project 13)—a large area spanning much of the EITP route—encompasses the Ivanpah Valley in Nevada; the towns of Jean, Primm, and Goodsprings; and both the Jean and Roach Dry Lakes. The Jean/Roach Dry Lake SRMA is managed by BLM to provide recreational opportunities, including motorcycling, off-highway vehicle (OHV) and 4 x 4 driving, horseback riding, mountain biking, small-game hunting, and organized racing events (BLM 2007).

Pursuant to P.L. 85-339, a large area surrounding the Eldorado Substation in the Eldorado Valley was patented to the Colorado River Commission of the State of Nevada. This land was subsequently transferred to the City of Boulder City and Clark County for the purposes of habitat conservation for desert tortoise. The area is now known as the Boulder City Conservation Easement (BCCE) and is managed under the Clark County Multiple Species Habitat Conservation Plan (MSHCP). The primary purpose of the BCCE is to preserve and protect the property as partial mitigation for the incidental take of desert tortoise and disturbance of tortoise habitat in other portions of Clark County. The MSHCP prohibits any development within the BCCE without written approval from Boulder City and Clark County.

Nevada Solar One (Cumulative Project 16) is a concentrated solar power facility in the Eldorado Valley, approximately 13 miles southwest of Boulder City. The facility sits on 400 acres of land, surrounded by the BCCE, and generates 64 MW of power using parabolic concentrators with more than 180,000 mirrors that concentrate the solar energy onto more than 18,000 receiver tubes. Fluid that heats up to 735 degrees Fahrenheit flows through these tubes and is used to produce steam that drives a conventional turbine, which is connected to a generator that produces electricity (Acciona 2009).

Near the Nevada Solar One project in the BCCE is a facility owned and operated by Sempra Energy. **El Dorado Combined Cycle Power Plant** (Cumulative Project 15) is a 480-MW natural gas fired power plant located on 138-acres of land, 17 miles southwest of downtown Boulder City and 40 miles southeast of Las Vegas. Eldorado Combined Cycle Power Plant has been operational since May 2000 (Sempra Generation n.d.).

There are a large number of **Clark County MSHCP Funded Restoration Activities** in and around the EITP project area located within the boundaries of BLM's Piute-Eldorado Valley ACEC. The primary goals of the ACEC are reduction of disturbance and restoration of disturbed areas for desert tortoise conservation and recovery. The Clark County Desert Conservation Program (DCP) promulgates the funding of these restoration projects as part of the mitigation process for fees received by the Clark County MSHCP. After providing funds to parties participating in the MSHCP, the DCP does not direct these projects nor grant protections for them. These projects do not have legal instruments applied that protect the sites in perpetuity.

The restoration mitigation projects fall under two categories: a) removing ecological threats or b) restoration/ improvement of desert habitat quality. Specifically, BLM projects within the area aim to remove potential threats to special status species (and in particular, for the desert tortoise). Potential actions to remediate threats include purchasing and closing sheep and cattle grazing allotments, road designations and closures, and other area closures (e.g. fencing off sensitive habitats to protect from damages from current OHV use and mining). Restoration and habitat improvement projects include monitoring for wild horses, burros, and desert tortoise, revegetation efforts, and invasive plant removal. These restoration projects are part of BLM's management and proactive conservation efforts within existing ACEC boundaries, and become part of the conservation portfolio for these areas. Currently, most of the grazing allotments within the Puite-Eldorado ACEC have been closed, and some of the roads (Figure 5-5). The majority of habitat fencing was installed by the Nevada Department of Transportation and concentrated along Hwy 95 from Loughlin to the Boulder City Conservation Easement, and on the west side of I-15 from Primm to Rt. 53. The majority of the rest of the restoration projects are revegetation efforts and invasive plant removal within specific locations (Figure 5-5).

5.2.2 Reasonably Foreseeable Future Projects

5.2.2.1 Proposed Renewable Projects

Tables 5-1 and 5-2 list the renewable projects that have been proposed in the cumulative study area in the Ivanpah and Eldorado valleys. It is not anticipated that all of these projects will be approved or constructed; however, given the number of projects proposed and political focus on permitting, approving, and constructing renewable energy generation (as described in Section 1.2, "Purpose, Need, and Objectives"), it is reasonable to assume that some of these renewable projects will be constructed.

There are multiple other ROW applications on file with the BLM for wind monitoring sites where there has been no action on the part of the applicant to prepare a wind development Plan of Development. This category of wind applications are not considered reasonable foreseeable future projects since they are not likely to result in an actual wind development project. There are also multiple ROW applications for solar projects that overlap and were filed on top of other pending solar applications. These "second in line" solar applications are not considered reasonable foreseeable future projects either. These speculative projects are not included in Tables 5-1 and 5-2.

The following section supplements the information provided in Tables 5-1 and 5-2, providing a general discussion of the potential impacts of wind and solar projects in order to give context for the cumulative analysis in this Chapter. Specific projects in the EITP cumulative study area are in various phases of planning and permitting; therefore, as of ~~December 31, 2009~~ July 30, 2010, specific information about potential environmental impacts was not available for all of them. Key projects that have filed Plans of Development (PODs) with the BLM and/or have published environmental planning documentation are described in more detail.

Wind Projects

Wind generation facilities typically are comprised of multiple wind turbines that are connected to a substation through a network of underground and overhead lines. In addition to erecting the wind turbines, installing a wind generation system typically requires constructing access roads, substations, and a switchyard as well as connecting the substation to a transmission line. The equipment for all the structures is stored at a staging area prior to construction. Many of the impacts associated with wind generation facilities result from their large footprint. Therefore, installation of these types of facilities could:

- Disturb wetlands or water bodies;
- Remove or alter vegetation and potential wildlife habitat;
- Temporarily displace wildlife; or
- Disturb cultural resources.

Likewise, operation of a wind generation facility typically:

- Alters the visual landscape;
- Causes the death or injury of birds and bats;
- Permanently displaces wildlife; and
- Influences migration patterns.

Other construction-related impacts are typical of construction projects in general, such as generation of noise and dust from construction activities and a temporary increase in traffic from the movement of construction vehicles and equipment on local streets. Construction of a wind generation facility also temporarily increases local employment,

including non-local workers requiring housing; however, these facilities typically employ only 30 permanent workers (approximately) and therefore do not have a significant impact on local economies.

For most of the proposed wind projects in the cumulative study area (Figure 5-1), little site-specific information is available because EIRs or EISs are not yet completed. Therefore, the discussion of potential contributions to cumulative impacts from these projects is qualitative rather than quantitative and is based on the impacts of similar projects. As indicated in Tables 5-1 and 5-2, environmental documents are not available for the **Iberdola Renewables Wind Project** (Cumulative Project J) proposed in California or the **Oak Creek Energy System/Desert Research Institute** project (Cumulative Project Z) or the **Searchlight Wind Project** (Cumulative Project CC) in Nevada.

Meteorological Towers

As a first step to determine the viability of a location for a wind power generation project, meteorological (MET) towers are installed to collect relevant meteorological data. MET towers are typically 60 meters tall, and ground is disturbed for a 60-meter radius surrounding the tower. A right-of-way (ROW) grant for MET towers is usually valid for 3 years, so 3 years is the typical duration of operation. Construction impacts of MET towers may include:

- Vegetation trimming or removal;
- Dust from vehicles;
- Impacts to listed species; and
- Impacts to cultural resources.

Impacts that typically occur during operation include alteration of the visual landscape and injury or mortality of migratory birds and bats.

~~Table Mountain Wind Project (Cumulative Project T)~~

~~Table Mountain Wind Company, LLC, is proposing to develop a 150- to 205-MW wind project 20 miles southwest of Las Vegas near Goodsprings, Nevada (Table Mountain Wind Company 2002). Although the Final EIS for the project was completed in 2002, the Record of Decision has not yet been approved. The BLM has requested that a Supplemental EIS be prepared due to conflicts with the proposed SNSA near Jean, Nevada; however, the Supplemental EIS is projected to take 9 to 12 months to complete (Mojave-Southern Great Basin Resource Advisory Council 2007). The process has not yet been initiated as of the publication of the EITP Draft EIR/EIS; therefore, while the Table Mountain Wind Project is a reasonably foreseeable future project, at this time, it is considered unlikely that it would be constructed concurrently with the EITP.~~

Solar Projects

Photovoltaic (PV) and Concentrating Solar Power (CSP) are the two dominant solar energy technologies on the market. PV technology creates electricity directly from sunlight, using solar cells. Solar cells have traditionally been made of monocrystalline silicon, but other material technologies exist. PV solar cells produce alternating current electricity, which is converted to direct current electricity with an inverter and then integrated directly into the power grid (rooftop applications) or transferred along distribution lines (utility-scale applications).

CSP technology, or "solar thermal" technology, concentrates sunlight to heat a liquid that produces steam that turns a simple turbine to create electricity. Parabolic troughs, solar power towers, and solar dishes are all forms of CSP technology that focus mirrors on a single point to generate steam. Generally, CSP technologies have been developed for utility-scale applications.

Both PV and CSP projects are proposed in the Ivanpah and Eldorado valleys. Some of these projects do not have detailed project descriptions available or have not undergone formal impact assessment. Both PV and CSP technologies have similar impacts, although CSP usually has a significant requirement for water for cleaning and cooling, which increases impacts. Typically, both types of construction projects cause a:

- Temporary increase in air pollutants and dust emissions;
- Temporary increase in noise;
- Temporary or permanent disruption of wildlife patterns from construction activities;
- Possible loss of cultural or historic resources; and
- Temporary disruption of local traffic patterns and road use.

Most of the construction impacts can be mitigated through site-specific best management practices and other mitigation measures. Because solar projects may result in a single use for the land, however, several permanent impacts could occur as a result of operations, including:

- Permanent loss of wildlife habitat;
- Impact to existing recreational activities;
- Increase in impermeable surfaces that could lead to increased magnitude or frequency of flooding events; and
- Permanent alteration of visual or aesthetic characteristics.

Limited site-specific information is available for most of the proposed solar projects in the cumulative study area because their EIRs or EISs are not complete. Therefore, the discussion of these projects' potential contributions to cumulative impacts is qualitative rather than quantitative and is based on the impacts of similar projects. As indicated in Tables 5-1 and 5-2, environmental documents are not available for the **First Solar Development** (Cumulative Project A) proposed in California or for **Bull Frog Green Energy** (Cumulative Project DD), **Cogentrix Solar Services** (Cumulative Project FF), or **Power Partners SW** (Cumulative Project JJ) proposed in Nevada.

Ivanpah Solar Electric Generating System Project (Cumulative Project K)

As discussed in Section 1.1.2, "Additional Projects Considered in this EIR/EIS," certain facts distinguish the Ivanpah Solar Electric Generating System (ISEGS) project from other proposed projects in the cumulative study area. The ISEGS project is closely related to the EITP, has demonstrated commercial viability, and is in the late stages of environmental review. In this cumulative impacts analysis, ISEGS is considered a foreseeable project. Impacts from the ISEGS project are also considered as part of the Whole of the Action / Cumulative Action at the end of each resource section in Chapter 3, "Environmental Analysis." For more detailed information about ISEGS, see Section 2.2.2, "Whole of the Action Description (CEQA)/Cumulative Action (NEPA)."

NextLight Silver State Solar Project (Cumulative Project Q)

The Silver State Solar Project, ~~located~~ proposed for development near Primm, Nevada, along the California/Nevada border, would intersect the EITP near milepost (MP) 26. The project would generate 400 MW of electricity on approximately ~~7,925 acres~~ 7,967 acres of BLM-administered lands and ~~was~~ originally comprised two separate projects—Silver State North and Silver State South. Silver State North was originally planned as a CSP power plant, and Silver State South was to be a PV plant. In November 2009, the Silver State project POD was changed to include only solar PV technology for the entire Silver State Solar Project. ~~The Silver State Solar Project would use either crystalline silicon or thin-film PV technology on single-axis trackers or fixed panels. Water usage is not expected to exceed 30 acre-feet per year.~~ The Silver State Solar Project would use fixed tilt mounting structures with cadmium telluride thin-film solar modules. Water would be supplied by onsite wells under a long-term contract from the Las

Vegas Valley Water District. Peak water use would be during construction for dust suppression (up to 600 acre-feet total, with no more than 200 acre-feet during any one year). O&M water requirements would be 21 acre-feet per annum (AFA) for the life of the project.

~~The project has finished the NEPA EIS scoping process and a Draft EIS is anticipated in early 2010. Project construction is expected to begin in December 2010 and continue through November 2014. Potential impacts of the NextLight Silver State Solar Project that may contribute to cumulative impacts include degradation of the visual character of Ivanpah Valley, noise and air quality impacts during construction, and alteration of OHV routes on BLM land (BLM 2009b).~~

The Draft EIS for this project was published in April 2010, and the Notice of Availability for the Final EIS was published in the Federal Register on September 10, 2010. The Record of Decision was signed by the Secretary of the Interior on October 12, 2010, and authorizes only Phase 1 of the project—Phase 2 and Phase 3 are still pending (BLM 2010b). Construction is expected to begin in December 2010 and continue through November 2014. Potential impacts of the NextLight Silver State Solar Project that may contribute to cumulative impacts include air quality and noise impacts during construction, reduction of groundwater volume, vegetation and habitat loss and fragmentation, impacts to desert tortoise population, alteration of OHV routes on BLM land, degradation of the visual character of Ivanpah Valley, and adverse impact to traffic load and LOS on I-15 on Fridays (BLM 2010).

The Silver State Solar Project is addressed in the EITP Draft EIR/EIS as a reasonably foreseeable future action. The project was not included in the "Whole of the Action / Cumulative Action" section of the EITP Draft EIR/EIS because the NEPA analysis for the Silver State project began ~~its NEPA analysis~~ much later than for the EITP. Further, at the time that development of this document began ~~development~~, there was not yet adequate information available to address the direct and indirect impacts of the Silver State Solar Project as part of the Whole of the Action / Cumulative Action. During the late stages of this Draft EIR/EIS's development, the environmental review schedules for the two projects began progressing on similar schedules. However, because the Draft EIS for the Silver State Solar Project had not yet been published while this EITP document was being developed, BLM and CPUC were limited to using the information it had available to analyze the cumulative impacts of the Silver State Solar Project along with other past, present, and reasonably foreseeable future projects. In the meantime, this project has been approved by the BLM, and the project proponent has a signed PPA with Nevada Energy and not SCE.

5.2.2.2 Other Projects

Other large projects that are proposed in the area include the Southern Nevada Supplemental Airport (SNSA), Calnev Pipeline Expansion Project, Molycorp Mine, and DesertXpress High-Speed Rail Project. Additional information about these projects is given below.

Southern Nevada Supplemental Airport (Cumulative Project B)

The Clark County Department of Aviation (CCDOA) proposes to construct the SNSA on 5,934 acres in the Ivanpah Valley in Nevada between Jean and Primm. The new airport would provide additional capacity to serve visitors to the metropolitan Las Vegas area and residents of greater Clark County, Nevada. In the Draft Alternatives Working Paper, a number of project alternatives were considered to determine whether they would meet the purpose and need of the project, including using other modes of transportation and placing the airport at another site nearer to Las Vegas (FAA 2008). ~~The Draft EIS for the SNSA project is expected to be released for public review in late 2012 or early 2013. Project construction is not anticipated to begin until 2014 and is expected to be completed in 2020 (FAA 2009, 2006).~~ The proposed airport site would be less than one mile from the EITP at MP 26. While the SNSA is considered a foreseeable future project, it is currently on hold.

Surrounding the proposed SNSA would be the Ivanpah Airport Environs Overlay (see Figure 5-1 or Figure 3.9-1 in Section 3.9, "Land Use"). The overlay would be 17,000 acres and would serve as a Noise Compatibility Area for the airport. The EITP intersects the 17,000-acre Ivanpah Airport Environs Overlay between MPs 24.5 and 28.5.

Potential impacts of the SNSA that may contribute to cumulative impacts include noise during ~~construction and~~ operation, air quality impacts to the Ivanpah Valley, and traffic impacts along the I-15 corridor. Since the EIS for the SNSA has not been published, this project's contributions to cumulative impacts can only be evaluated qualitatively, based on similar projects.

Calnev Pipeline Expansion Project (Cumulative Project S)

Calnev Pipe Line, LLC (Calnev), an operating partnership for Kinder Morgan Energy Partners, LP, proposes to replace and expand its refined petroleum products pipeline on the existing Calnev system. The pipeline would run between the existing North Colton Terminal in the City of Colton, San Bernardino County, California, to Bracken Junction, located about 1.5 miles west of McCarran International Airport in the City of Las Vegas, Clark County, Nevada. In addition to the main underground pipelines, the existing Calnev system includes laterals to the Southern California Logistics Airport (formerly George Air Force Base), Edwards and Nellis Air Force bases, the Burlington Northern and Santa Fe (BNSF) rail yard at Barstow, California, and the McCarran International Airport. Existing above-grade facilities include terminals, pump stations, and junctions at various locations along the alignment.

The project would involve construction, operation, and maintenance of approximately 233 miles of new 16-inch-diameter, subsurface pipeline from Colton to Las Vegas. In addition to pipeline construction, the project would require construction of tie-ins, laterals, a new pump station, a new junction, an electric substation, and upgrades to components of the existing Calnev system. Project construction is anticipated to be carried out within a 100-foot-wide ROW (URS 2007, BLM 2008). Pipeline startup had been previously projected for late 2009 or early 2010, but the project currently remains in the Draft EIR/EIS stage of environmental analysis. The pipeline project would intersect the EITP near MP 27. This pipeline project may contribute to cumulative impacts to air quality, noise, hydrology, soils, and traffic during the construction phase and hazards impacts in the case of rupture and/or explosion during the operation phase. Since the Draft EIS has not been published, this project's contributions to cumulative impacts can only be evaluated qualitatively, based on similar projects.

DesertXpress High-Speed Rail Line (Cumulative Project C)

DesertXpress Enterprises, LLC, proposes to construct and operate a privately financed interstate high-speed passenger train, with a top speed of approximately 150 miles per hour, between Victorville, California, and Las Vegas, Nevada. The approximately 60-foot-wide, 200-mile-long corridor would be a fully grade-separated, dedicated, double-track, passenger-only railroad roughly following I-15 and existing railroad corridors/ROWs. The project would also include construction of a passenger station in Victorville, California; a passenger station in Las Vegas, Nevada; a maintenance and operation facility in Victorville; an overnight maintenance and storage facility in the Las Vegas area; and associated ancillary facilities needed to maintain and operate the proposed rail line. Operation is estimated to start in 2012 (USDOT 2009). The project intersects EITP near MP 34. Possible impacts of the DesertXpress project that may contribute to cumulative impacts include collisions with local animals (including representatives of sensitive species such as the desert tortoise), public safety impacts, surface hydrology impacts, and possible air quality impacts, during both the construction and operation phases.

Joint Port of Entry Project (Cumulative Project E)

The State of California, acting through the California Department of Transportation (Caltrans), filed an application for the Joint Port of Entry (JPOE) project, which would be on 133 acres of public lands. The proposed JPOE inspection facility would be comprised of a commercial vehicle enforcement facility and an agricultural inspection facility between Nipton Road and Yates Well Road on southbound I-15. Upon completion of the project, all traffic entering California on southbound I-15 would be diverted through the JPOE. A Notice of Realty Action for the JPOE project was published on February 10, 2010. This project may contribute to cumulative impacts to aesthetics and visual resources, air quality (short-term), cultural, geology, noise, and transportation and traffic.

TransWest Express Transmission Project (Cumulative Project W)

The TransWest Express Transmission Project is an extra-high-voltage direct-current electric transmission system. The transmission line would extend from south-central Wyoming through northwestern Colorado and central Utah and then turn southwest into southern Nevada, and end near Eldorado, Nevada. Under development since 2005, the transmission line is anticipated to begin construction in 2013. Currently, the proposed project would turn south before Las Vegas, pass Henderson to the east, and travel further south to an area near the Eldorado Substation. There also is an alternative that could circle Las Vegas from the northeast to the southwest pass and cross I-15 north of Jean and then continue to Eldorado. Other alternatives are closer to Lake Mead and/or would be located on the east side of Boulder City (Transwest 2010).

Goodsprings Waste Heat Recovery Plant (Cumulative Project H)

The proposed Goodsprings Waste Heat Recovery Plant would be located near Goodsprings, Nevada, approximately 9.5 miles north of the proposed project route. The plant would generate 6 MW of energy from waste heat from the Kern River pipeline compressor station, which would be used to turn turbines and generate electricity (NV Energy 2010). Construction is scheduled to be completed in 2010 (Robison 2010). Therefore, this project will be completed before the proposed EITP begins construction.

Cancelled Projects

Several projects have been planned and BLM or other ROWs have been sought over the course of the development of this EIR/EIS but have been subsequently cancelled. These include the following:

- The Ivanpah Energy Center was a proposed 500-MW combined cycle natural gas power plant. The project has been terminated, and the BLM ROW application closed.
- The Table Mountain Wind Project would have been located near Goodsprings, Nevada. An EIS was developed, but the BLM has stated that the project will not be moving forward with a Supplemental EIS (Helseth 2010).
- Power Partners proposed to build a 250 MW solar power plant that would cover 10,814 acres near Jean, Nevada. The project was cancelled in February 2010.
- A 166-acre mixed-use development near Jean that was proposed by a joint venture of the MGM Mirage and two Las Vegas-based developers would include affordable housing, commercial businesses, shops, and a hotel-casino. This project is on hold until at least the building of the new airport has begun. Other foreseeable projects are on hold, but this one has the longest timeframe for which it will be on hold and there are some news articles suggesting that the project has been halted (Stutz 2008).

These projects are not considered in the cumulative impact analysis.

5.3 Cumulative Impact Analysis

This section analyzes cumulative impacts that could result from the EITP when considered with the other projects listed in Tables 5-1 and 5-2 and described above. Geographic areas for cumulative impacts vary by resource and are described within each resource subsection (i.e., the resource-specific "cumulative impact area"). The geographic extent and timeframe of the cumulative impact analysis, the past and present projects and their impacts, and the reasonably foreseeable future projects are described for each resource area. To assess the cumulative impact of the EITP, this analysis first assesses whether the cumulative projects would result in a cumulatively considerable impact and then, if a cumulatively considerable impact is determined to result, assesses the EITP's contribution to that impact. However, in instances in which the analysis in Chapter 3, "Environmental Analysis," determined that the EITP would result in no impact, these criteria are not carried forward for analysis in this section. In general, each cumulative impact discussion provides an overview of the potential impacts, followed by specific analysis of the EITP's

cumulative impacts under both CEQA and NEPA. These analyses parallel the analyses for the EITP conducted in Chapter 3 in this Draft EIR/EIS.

As discussed in Section 1.1.2, "Additional Projects Considered in this EIR/EIS," many renewable generation projects are being developed, applied for, and analyzed under CEQA and/or NEPA concurrently with the proposed EITP in the Ivanpah Valley area. Their status and the level of publicly available information varies. Based on timing, geographic location, and signed agreements between the applicant and the BrightSource solar developer, the ISEGS project is considered part of the "whole of the action" under CEQA and as a "cumulative action" under NEPA. Other renewable generation projects planned in the Ivanpah Valley area would likely connect to the EITP as well, including those projects listed in Table 5-1 and 5-2. Unlike the ISEGS project, these projects are not considered part of the whole of the action under CEQA or as a cumulative action under NEPA due to the lack of a signed power purchase agreement (PPA) with specific contractual terms addressing interrelatedness and the lack of publicly available information on their environmental effects as of December 31, 2009.

The cumulative analysis provided in this section first provides a cumulative analysis with the ISEGS project as one of many cumulative projects. Then, a summary of the cumulative impact analysis that was developed for the ISEGS project by the California Energy Commission (CEC) and the BLM is also included under the ISEGS header for each resource below. This is followed by a brief analysis of the cumulative impact of the Whole of the Action / Cumulative Action evaluated in this EIR/EIS.

5.3.1 Aesthetic and Visual Resources

5.3.1.1 Geographic Extent and Timeframe

The geographic scope for the analysis of cumulative impacts on visual resources includes all projects within the same viewshed as the EITP. Because the EITP is linear and crosses through the Eldorado and Ivanpah valleys, the cumulative analysis considers all planned renewable energy and infrastructure development in those valley regions that would be visible, along with the EITP, from the viewpoints identified in Section 3.2.1.6, "Key Observation Points." Additional detail about the determination of the geographic extent is provided below. Cumulative impacts to visual resources could occur during the EITP's construction or operation phases. Cumulative impacts could occur if activities associated with the construction of the EITP and any of the cumulative projects were to occur simultaneously. Given the amount of development planned in the cumulative study area, and given that renewable projects already or may eventually intend to connect to the EITP, it is reasonable to assume that some construction activities may take place concurrently with the EITP. Cumulative impacts could also occur for any cumulative projects that would be in operation concurrently with the EITP.

Views from Key Observation Points

An explanation of how Key Observation Points (KOPs) were selected is provided in 3.2.1.6, "Key Observation Points." The assessment of cumulative impacts on aesthetics and visual resources is limited to those projects that would be visible along with components of the EITP from each KOP (Table 5-4). Figures 5-2, 5-3, and 5-4 depict visibility of EITP components along with the cumulative projects. The visibility analysis used data for the existing land contours to determine the extent to which each project component could potentially be visible without being visually obstructed by topography; these maps also include a distance zone overlay to differentiate between foreground, middleground, and background distances, as distance is a key factor in determining the intensity of visual impacts. BLM distance zones are foreground (0 to 1 mile), middleground (1 to 3 miles), background (3 to 5 miles), and seldom-seen views (greater than 5 miles) (BLM Manual H-8410-1). The visibility of each project component is constrained to within 5 miles of the KOPs because any greater distance is considered to fall within the seldom seen distance zone. Table 5-4 lists what is visible at each KOP and the sensitivity of each. The sensitivity of these locations considers number of viewers, duration of views, distance between the viewer and the EITP, and viewer expectation. Viewer expectation considers viewer activity, adjacent land uses, special management areas in the vicinity, and any federal, state, or local regulations that protect visual resources in the area.

Table 5-4 EITP Project Components and Cumulative Projects Visible from KOPs

Key Observation Point	Project Component Visible	Distance Zone	Sensitivity	Cumulative Project Visible from KOP location[1]	VRM or VRI Designation
KOP 1: View of the Transmission Corridor Looking Northeast toward the McCullough Mountain Range	Transmission Line	Foreground and Middleground	Moderate	Existing SCE Transmission Line; Jean/Roach Dry Lake SRMA	VRM Class II and VRM Class III
KOP 2: View from the South McCullough Wilderness Area	Transmission Line	Background	Moderate	Existing SCE Transmission Line; Jean/Roach Dry Lake SRMA	VRM Class II
KOP 3: View from Interstate 15 near Jean, Nevada	Transmission Line	Seldom Seen	Low	Existing Transmission Line; ~~AT&T Fiber Optic Cable;~~ Jean/Roach Dry Lake SRMA; DesertXpress; Calnev Pipeline Expansion Project; SNSA	VRM Class III
KOP 4: View from the Desert Oasis Apartments in Primm, Nevada	Transmission Line	Foreground	Moderate to High	Existing Transmission Line; Jean/Roach Dry Lake SRMA; Ivanpah Dry Lake Recreation Area; Primm Casinos; Primm Outlet Mall; Primm Valley Golf Course; Bighorn Electric Generating System; Caltrans Temporary Batch Plant; SNSA; KFC/Taco Bell; ISEGS; First Solar; ~~NextLight~~ Silver State; DesertXpress; Calnev Pipeline Expansion Project	VRM Class III and VRI Class III
KOP 5: View from Ivanpah Dry Lake, East of Interstate 15	Transmission Line	Middleground	Moderate to High	Existing Transmission Line; Jean/Roach Dry Lake SRMA; Ivanpah Dry Lake Recreation Area; Molycorp Mine Evaporation Pond; Molycorp Mine Wastewater Pipeline; Primm Casinos; Primm Outlet Mall; Primm Valley Golf Course; Bighorn Electric Generating System; Caltrans Temporary Batch Plant; SNSA; KFC/Taco Bell; ISEGS; First Solar; ~~NextLight~~ Silver State; DesertXpress; Calnev Pipeline Expansion Project	VRM Class III
KOP 6: View from Interstate 15 near Primm, Nevada	Transmission Line	Middleground	Low	Existing Transmission Line; Jean/Roach Dry Lake SRMA; Ivanpah Dry Lake Recreation Area; Molycorp Mine Evaporation Pond; Molycorp Mine Wastewater Pipeline; Primm Casinos; Primm Outlet Mall; Primm Valley Golf Course; Bighorn Electric Generating System; Caltrans Temporary Batch Plant; SNSA; KFC/Taco Bell; ISEGS; First Solar; ~~NextLight~~ Silver State; DesertXpress; Calnev Pipeline Expansion Project	VRM Class III

Table 5-4 EITP Project Components and Cumulative Projects Visible from KOPs

Key Observation Point	Project Component Visible	Distance Zone	Sensitivity	Cumulative Project Visible from KOP location[1]	VRM or VRI Designation
KOP 7: View from Highway 95 in the Eldorado Valley	Eldorado Substation; Transmission Line	Background	Low	Existing Eldorado Substation; Existing Transmission Line; Nevada Solar One; El Dorado Energy Combined Cycle Power Plant; Cogentrix Solar Services	VRM Class III
KOP 8: View from Highway 164 Overpass in the Ivanpah Valley	Ivanpah Substation; Transmission Line	Background	Low	Primm Valley Golf Course; Caltrans Temporary Batch Plant; Molycorp Wastewater Pipeline; Molycorp Evaporation Pond; DesertXpress; Calnev Pipeline Expansion Project; Power Partners SW; Joint Port of Entry; ISEGS; First Solar.	VRI Class III

Notes:

[1] The cumulative projects listed here include all projects that would be potentially visible from each KOP based on topography. This list does not take into account other factors that may obstruct views of these projects from these locations, such as atmospheric conditions or intervening development. This list also represents projects that would be visible from the KOP in any direction, which does not necessarily correspond to the bearing of the KOP photographs included in Section 3.2: Aesthetics and Visual Resources.

5.3.1.2 Past and Present Project Impacts/Existing Cumulative Conditions

Section 3.2.1, "Environmental Setting," provides an overview of the existing visual setting and the potentially impacted viewer groups of the EITP and its alternatives. Both the Ivanpah and Eldorado valleys are predominantly intact scenically, although development is evident along Interstate 15 (I-15) and Highway 95, the major roads that bisect these valleys, and characterized by large expanses of open scrub land punctuated by flat, barren dry lakes. These vast expanses of gently sloping bajada contrast dramatically with the jagged peaks of the Clark, New York, Lucy Gray, and McCullough mountain ranges that surround the Ivanpah and Eldorado valleys.

Past and present projects have altered the visual character of the cumulative study area. Development in the vicinity of the EITP that has already altered the visual character of the Ivanpah Valley and the Eldorado Valley includes I-15, an existing railroad track, the Primm Valley Golf Course, several large interstate high voltage electric transmission lines and associated infrastructure, the existing Eldorado Substation, the Nevada Solar One Project, the Bighorn Electric Generating Station, numerous mining operations, the Jean/Roach Dry Lake SRMA and Ivanpah Dry Lake Recreation Area, and casino-focused commercial and residential development in Primm, Nevada.

Development has encroached on viewsheds for all of the eight KOPs (Table 5-4). Four of the eight KOPs—KOP 4, KOP 5, KOP 6, and KOP 8—depict views of the Ivanpah Valley area, where development has most encroached on viewsheds. Linear development, including the existing 115-kilovolt (kV) subtransmission line, the existing railroad, and I-15 have introduced vertical lines that bisect viewsheds and darker colors that contrast with the neutral tones of the desert setting. The structures associated with the other development in the area—including the Primm Casinos, the Primm Valley Outlet Mall, the KFC/Taco Bell, the Desert Oasis Apartment Complex, the Bighorn Electric Generating Station, and the Caltrans Temporary Batch Plant have affected the distribution and texture of vegetation in the valley, introduced new colors into the viewshed, required grading that has altered the existing landform, disrupted existing linear elements in views, and introduced structures that dominate viewsheds and draw the attention of the viewer. The Primm Valley Golf Course has introduced dark greens into the viewshed and altered the existing texture by changing the distribution of vegetation.

Three of the eight KOPs—KOP 1, KOP 2, and KOP 3—depict views of the Eldorado Valley west of the McCullough Mountain Range. Development visible in views from these locations includes I-15, the existing railroad, and the existing 115-kV subtransmission line. These projects have introduced new linear features into the viewshed that draw the attention of the viewer; additionally, I-15 and the railroad have introduced moderate color contrast with the neutral tones of the desert landscape. The AT&T fiber optic cable and the existing Calnev pipeline are present in these views, but not visible due to the fact that they were installed underground and vegetation has since concealed cleared and graded areas.

KOP 7 depicts a view of the Eldorado Valley east of the McCullough Mountain Range. Development has encroached on views from this location, including the 115-kV subtransmission line, a Los Angeles Department of Water and Power (LADWP) 500-kV transmission line, the Eldorado Substation, the Nevada Solar One facility, and the El Dorado Energy Combined Cycle Power Plant. These elements have introduced new lines and forms into the viewshed. Clearing and grading activities necessary to accommodate this development has altered the texture created by vegetative distribution and has introduced light tans that contrast with the natural hues of the desert landscape. The Nevada Solar One facility has also introduced deep blues into the viewshed, new linear features created by the rows of solar troughs, and a smooth texture. Overall, development dominates views from this location and draws the attention of the viewer.

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ABEL	NAME	STATUS	Acreage*
1	Bighorn Electric Generating Station	Existing	86.9
2	Primm Casinos	Existing	127.8
3	Primm Valley Golf Course	Existing	531.3
4	Primm Outlet Mall	Existing	38.7
5	Ivanpah Dry Lake RA	Existing	12,855.3
6	Molycorp Mine	Existing	862.4
7	Colosseum Mine	Existing	289.9
8	Desert Oasis Apartments	Existing	13.5
9	Molycorp Mine Evaporation Pond	Existing	355.5
10	AT&T FiberOptic Cable	Existing	NA**
11	SCE 115 kV Transmission Line	Existing	NA**
12	Molycorp Wastewater Pipeline	Existing	NA**
13	Jean/Roach Dry Lake SRMA	Existing	224,931.4
14	SNSA	Pending	5,996.6
15	El Dorado Energy Combined Cycle Power Plant	Existing	138.2
16	Nevada Solar One	Existing	400.5
17	KFC/Taco Bell	Existing	3.6
A	First Solar Development	Pending	5,433.4
B	SNSA Ivanpah Airport Environs Overlay	Pending	16,579.6
C	Desert Xpress	Pending	NA**
CC	Searchlight Wind Energy Corp	Pending	19,886.7
DD	BullFrog Green Energy	Pending	3,352.2
E	Joint Port of Entry	Pending	324.7
F	Temporary Batch Plant	Existing	32.4
FF	Cogentrix Solar Services	Pending	640.8
J	Iberdrola Renewables	Pending	1,872.6
JJ	Power Partners SW	Pending	3,874.0
K	Brightsource ISEGS	Pending	4,073.4
Q	Nextlight Renewable Power	Pending	7,837.2
S	CalNev Pipeline Expansion Project	Existing/Pending	NA**
T	Table Mountain Wind	Pending	13,665.4
Z	Oak Creek Energy Systems/Desert Research Inst	Pending	35,530.5

* Cumulative project areas are approximated reflecting the project right-of-way and not necessarily the actual or final project boundary footprint.

** Linear projects not included when calculating overall disturbance acreages.

SOURCE: See source list for Table 5-1 and Table 5-2.

Goodsprings
Jean
Primm
IVANPAH
MT. PASS
Nipton
ELDORADO
Searchlight
NEVADA
CALIFORNIA
CLARK CO.
SAN BERNARDINO CO.
KOP 1
KOP 2
KOP 3
KOP 4
KOP 5
KOP 6
KOP 7
KOP 8

Figure 5-2
Eldorado-Ivanpah Transmission Project

Visibility Analysis for the Eldorado-Ivanpah Transmission Line and the Cumulative Projects

Cumulative Linear Project
- Existing
- Existing/Pending
- Pending
- Cumulative Project Area
- Ivanpah Airport Environs Overlay

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- County Highway
- State Highway
- Interstate
- Railroad
- Dry Lake Bed
- KOP Locaiton
- 5 Mile Buffer of KOP Locations

Visibility Analysis
- Visible Areas in Foreground Visibility Zone (0-1mi)
- Visible Areas in Middleground Visibility Zone (3-5mi)
- Visible Areas in Background Visibility Zone (3-5mi)
- Visible Areas in Seldom Seen Visibility Zone (>5mi)

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ABEL	NAME	STATUS	Acreage*
1	Bighorn Electric Generating Station	Existing	86.9
2	Primm Casinos	Existing	127.8
3	Primm Valley Golf Course	Existing	531.3
4	Primm Outlet Mall	Existing	38.7
5	Ivanpah Dry Lake RA	Existing	12,855.3
6	Molycorp Mine	Existing	862.4
7	Colosseum Mine	Existing	289.9
8	Desert Oasis Apartments	Existing	13.5
9	Molycorp Mine Evaporation Pond	Existing	355.5
10	AT&T FiberOptic Cable	Existing	NA**
11	SCE 115 kV Transmission Line	Existing	NA**
12	Molycorp Wastewater Pipeline	Existing	NA**
13	Jean/Roach Dry Lake SRMA	Existing	224,931.4
14	SNSA	Pending	5,996.6
15	El Dorado Energy Combined Cycle Power Plant	Existing	138.2
16	Nevada Solar One	Existing	400.5
17	KFC/Taco Bell	Existing	3.6
A	First Solar Development	Pending	5,433.4
B	SNSA Ivanpah Airport Environs Overlay	Pending	16,579.6
C	Desert Xpress	Pending	NA**
CC	Searchlight Wind Energy Corp	Pending	19,886.7
DD	BullFrog Green Energy	Pending	3,352.2
E	Joint Port of Entry	Pending	324.7
F	Temporary Batch Plant	Existing	32.4
FF	Cogentrix Solar Services	Pending	640.8
J	Iberdrola Renewables	Pending	1,872.6
JJ	Power Partners SW	Pending	3,874.0
K	Brightsource ISEGS	Pending	4,073.4
Q	Nextlight Renewable Power	Pending	7,837.2
S	CalNev Pipeline Expansion Project	Existing/Pending	NA**
T	Table Mountain Wind	Pending	13,665.4
Z	Oak Creek Energy Systems/Desert Research Inst	Pending	35,530.5

* Cumulative project areas are approximated reflecting the project right-of-way and not necessarily the actual or final project boundary footprint.

** Linear projects not included when calculating overall disturbance acreages.

SOURCE: See source list for Table 5-1 and Table 5-2.

Goodsprings
Jean
Primm
IVANPAH
MT. PASS
Nipton
ELDORADO
Searchlight
NEVADA
CALIFORNIA
CLARK CO.
SAN BERNARDINO CO.
KOP 1
KOP 2
KOP 3
KOP 4
KOP 5
KOP 6
KOP 7
KOP 8

Figure 5-3
Eldorado-Ivanpah Transmission Project

Visibility Analysis for the Ivanpah Substation and the Cumulative Projects

Cumulative Linear Project
- Existing
- Existing/Pending
- Pending

Cumulative Project Area

Ivanpah Airport Environs Overlay

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- County Highway
- State Highway
- Interstate
- Railroad
- Dry Lake Bed
- KOP Locaiton
- 5 Mile Buffer of KOP Locations

Visibility Analysis
- Visible Areas in Foreground Visibility Zone (0-1mi)
- Visible Areas in Middleground Visibility Zone (3-5mi)
- Visible Areas in Background Visibility Zone (3-5mi)
- Visible Areas in Seldom Seen Visibility Zone (>5mi)

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LABEL	NAME	STATUS	Acreage*
1	Bighorn Electric Generating Station	Existing	86.9
2	Primm Casinos	Existing	127.8
3	Primm Valley Golf Course	Existing	531.3
4	Primm Outlet Mall	Existing	38.7
5	Ivanpah Dry Lake RA	Existing	12,855.3
6	Molycorp Mine	Existing	862.4
7	Colosseum Mine	Existing	289.9
8	Desert Oasis Apartments	Existing	13.5
9	Molycorp Mine Evaporation Pond	Existing	355.5
10	AT&T FiberOptic Cable	Existing	NA**
11	SCE 115 kV Transmission Line	Existing	NA**
12	Molycorp Wastewater Pipeline	Existing	NA**
13	Jean/Roach Dry Lake SRMA	Existing	224,931.4
14	SNSA	Pending	5,996.6
15	El Dorado Energy Combined Cycle Power Plant	Existing	138.2
16	Nevada Solar One	Existing	400.5
17	KFC/Taco Bell	Existing	3.6
A	First Solar Development	Pending	5,433.4
B	SNSA Ivanpah Airport Environs Overlay	Pending	16,579.6
C	Desert Xpress	Pending	NA**
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DD	BullFrog Green Energy	Pending	3,352.2
E	Joint Port of Entry	Pending	324.7
F	Temporary Batch Plant	Existing	32.4
FF	Cogentrix Solar Services	Pending	640.8
J	Iberdrola Renewables	Pending	1,872.6
JJ	Power Partners SW	Pending	3,874.0
K	Brightsource ISEGS	Pending	4,073.4
Q	Nextlight Renewable Power	Pending	7,837.2
S	CalNev Pipeline Expansion Project	Existing/Pending	NA**
T	Table Mountain Wind	Pending	13,665.4
Z	Oak Creek Energy Systems/Desert Research Inst	Pending	35,530.5

* Cumulative project areas are approximated reflecting the project right-of-way and not necessarily the actual or final project boundary footprint.

** Linear projects not included when calculating overall disturbance acreages.

SOURCE: See source list for Table 5-1 and Table 5-2.

Goodsprings
Jean
Primm
Nipton
IVANPAH
MT. PASS
ELDORADO
Searchlight
NEVADA
CALIFORNIA
CLARK CO.
SAN BERNARDINO CO.
KOP 1
KOP 2
KOP 3
KOP 4
KOP 5
KOP 6
KOP 7
KOP 8

Figure 5-4
Eldorado-Ivanpah Transmission Project

Visibility Analysis for the Eldorado Substation and the Cumulative Projects

Cumulative Linear Project
- Existing
- Existing/Pending
- Pending

Cumulative Project Area

Ivanpah Airport Environs Overlay

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course

- Milepost
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- County Highway
- State Highway
- Interstate
- Railroad
- Dry Lake Bed
- KOP Locaiton
- 5 Mile Buffer of KOP Locations

Visibility Analysis
- Visible Areas in Foreground Visibility Zone (0-1mi)
- Visible Areas in Middleground Visibility Zone (3-5mi)
- Visible Areas in Background Visibility Zone (3-5mi)
- Visible Areas in Seldom Seen Visibility Zone (>5mi)

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The Ivanpah Dry Lake Recreation Area and Jean/Roach Dry Lake Recreation Areas (RA) are visible from all KOPs except for KOP 7. These projects represent areas of land managed for recreation purposes. OHV usage is an allowable use in these areas, so linear elements have been introduced throughout these RAs where OHV trails bisect the area. OHV usage in these locations has also changed the texture of the landscape due to the introduced strips of non-vegetated lines visible along each OHV trail. The RAs do not have structures associated with them.

5.3.1.3 Reasonably Foreseeable Future Projects

Planned development throughout the cumulative impact area for visual resources is dominated by renewable energy projects, including both solar and wind facilities, and the associated infrastructure. Table 5-4 lists the cumulative projects that would be visible with components of the EITP for each KOP. The ISEGS, First Solar, and NextLight Silver State ~~Projects~~ projects are all planned for the Ivanpah Valley area near Primm, Nevada. These projects would be visible from KOP 4, KOP 5, and KOP 6. The ISEGS and First Solar projects would be visible in distant views from KOP 8.

As described in Section 3.2.5.3, the ISEGS project would result in significant and unavoidable impacts on visual resources~~.~~. Because the First Solar and NextLight Silver State ~~Projects~~ projects would use solar PV technology, these projects would result in ~~less~~ fewer impacts from the introduction of new sources of glare than the ISEGS project and would not have the approximately 450-foot-tall towers proposed for the ISEGS project. These projects would still introduce contrast to the existing landscape similar to the contrast introduced by the Nevada Solar One project discussed above. Both projects would introduce ~~deep blues~~ colors that range from matte gray to reflective blue to black into the viewshed, new linear features created by the rows of solar troughs, and a smooth texture (from some viewpoints). Additionally, clearing and grading activities would alter the texture created by vegetative distribution and would introduce ~~light tans~~ darker exposed soils that would contrast with the natural hues of the desert landscape. Structures associated with these projects including solar panels, inverters, and gen-tie lines would encroach on foreground views and would attract the attention of the viewer in middleground and background distance zones.

Other development reflects the expansion of southern Nevada as a tourist destination. The proposed SNSA would result in significant and unavoidable adverse changes to existing visual resources, particularly for viewers near Primm, Nevada, on I-15, and within the Jean/Roach Dry Lake SRMA. Large paved areas would introduce greys and blacks that would contrast with the existing neutral tones of the desert landscape. Displacement of vegetation in these areas would also alter the existing texture created by the vegetation distribution. The flat, paved surface would create a new line in the landscape and associated structures would dominate the forms seen in existing views. The DesertXpress high speed rail project would introduce linear and color contrast, similar to the effects described above for the existing railroad.

KOP 7 may have partial views of the Cogentrix Solar Services project in the seldom seen distance zone, but any changes would be minor and difficult to distinguish due to distance and topography (Figure 5-2). KOP 8 may have partial views of the Iberdola Renewables project in the seldom seen distance zone but again, any changes would be minor and difficult to distinguish due to distance and topography (Figure 5-2). As seen in the visibility analyses for Figures 5-2, 5-3, and 5-4, no other projects would be visible from the KOPs.

5.3.1.4 Cumulative Impact Analysis

The potential for the aesthetic and visual impacts of the EITP to combine with the effects of other projects within the geographic extent of the cumulative analysis is described below. As discussed in Section 3.2.3, "Impact Analysis," the EITP would be consistent with VRM or VRI designations for seven of the eight KOPs and, with mitigation, would result in less than significant impacts under CEQA. KOP 1 would result in a major, adverse effect under NEPA.

The methodology and impact criteria used to assess the impacts to visual resources under NEPA and CEQA are discussed in Section 3.2.3. The same KOPs used to assess the proposed project's impacts on visual resources are also used to assess cumulative impacts to visual resources in the Eldorado and Ivanpah valleys. These KOPs were

agreed upon by CPUC and BLM staff and represent typical and sensitive viewpoints in the project area. This section discusses the combined effects of the proposed project and past, present, and reasonably foreseeable projects on existing visual character and quality from each KOP. The relevant impact of the proposed project is IMPACT AES-2: Degrade Existing Visual Character or Quality.

Visual Impacts from Construction Activities

As stated above, cumulative impacts could occur if activities associated with the construction of the EITP and any of the cumulative projects were to occur simultaneously. Table 5-5 lists the cumulative projects that would or may overlap with EITP construction activities and the potentially affected KOPs. Any cumulative impacts associated with concurrent construction periods would be temporary.

Table 5-5 Concurrent Construction of the EITP and the Cumulative Projects and Potentially Affected KOPs

Cumulative Project Name	Estimated Construction Period/Year(s) of Construction	Construction Overlap With EITP	Affected KOP(s)	Relevant EITP Component
DesertXpress[1]	2 years/2010 – 2012	Yes	KOP 3, KOP 4[3], KOP 5, KOP 6, KOP 8	Transmission Line and Ivanpah Substation
Southern Nevada Supplemental Airport (SNSA)	7 years/~~2014 – 2020~~ Unknown	~~Unlikely~~ No	KOP 3, KOP 4[3], KOP 5, KOP 6	Transmission Line
Calnev Pipeline Expansion Project	Unknown/Unknown	Potentially	KOP 3, KOP 4[3], KOP 5, KOP 6, KOP 8	Transmission Line and Ivanpah Substation
ISEGS Solar Energy Project[2]	4 years/2010 – end of 2013	Yes	KOP 4[3], KOP 5, KOP 6, KOP 8	Transmission Line and Ivanpah Substation
FirstSolar Project	Unknown/Unknown	Potentially	KOP 4[3], KOP 5, KOP 6, KOP 8	Transmission Line and Ivanpah Substation
NextLight ~~Renewable Power~~ Silver State Solar Project	4 years/ 2010 – 2014	Yes	KOP 4[3], KOP 5, KOP 6, KOP 8	Transmission Line and Ivanpah Substation
Joint Port of Entry	19 months / Spring 2011-Fall 2012	Yes	KOP 8	Transmission Line and Ivanpah Substation

Sources/Notes:
[1] USDOT FRA 2009
[2] CEC and BLM 2009; CEC 2010a
[3] KOP 4 is located within the Desert Oasis Apartment Complex that is surrounded by a screening wall; therefore, views of projects from this location may be obscured.

The three renewable energy projects listed in Table 5-5 would be visible from four KOPs in the Ivanpah Valley area near Primm, Nevada. Construction of these solar projects would require grading and the removal of vegetation, which would introduce color contrast through the exposure of bare soils and would alter the existing texture of the landscape by changing the distribution of vegetation. These activities would also introduce new lines and potentially alter existing forms. Temporary signage, as well as storage of construction materials and equipment, would clutter views and draw attention from the existing natural landscape.

The DesertXpress Project and the Calnev Pipeline Expansion Project would be located along the I-15 corridor and would be visible from the five KOPs along the I-15 corridor in both the Ivanpah and Eldorado valleys. These projects are both linear projects that would require grading and the exposure of soils through constructing a raised berm for the DesertXpress and through trenching activities for the Calnev Pipeline Expansion. This would create a new line that would bisect views; however, the area of land that would be disturbed during construction would be on a smaller

scale than the area disturbed for the solar projects discussed above and would be less evident in middleground and background views, such as those from KOP 5, KOP 6, and KOP 8.

Construction of the EITP would result in temporary impacts on visual resources that would contribute incrementally to impacts on visual resources from the cumulative projects for KOP 4, KOP 5, KOP 6, and KOP 8. Construction activities would not likely be visible from KOP 3 due to distance and the fact that viewers represented by this KOP would likely be traveling at speeds of approximately 70 miles per hour on I-15. Construction activities for the EITP would require grading and vegetation removal for improvements to access and spur roads, which would introduce new color into views, alter the texture of the landscape, and create a line that would bisect views. The EITP would also require the exposure of bare soils where towers would be installed and where laydown or staging yards would be located. Only KOP 8 would have views of a laydown or staging area. No trenching activities associated with the telecommunications line would be visible from these KOPs. Similar to the construction impacts of the linear projects described above, the EITP's impact on visual resources due to construction activity would be on a smaller scale than the impact of the construction activities associated with the three solar projects in the vicinity of Primm, Nevada. Still, the EITP would contribute to temporary cumulative impacts to the existing viewshed as seen from KOP 4, KOP 5, KOP 6, and KOP 8 by introducing new color and line into views and by altering the existing texture of the landscape.

Operational Impacts on KOPs

Operation of the cumulative projects would permanently alter the existing landscape for the life of the project as seen from the eight KOPs listed in Table 5-4. The cumulative impact on visual resources in the Ivanpah and Eldorado valleys would be considerable, as described below for each KOP Simulations. Displaying both the Project and the cumulative projects in one simulation was not completed due to a lack of available information on project design; therefore, visual impacts are described based on existing publicly available information about the visual impacts of the cumulative projects or, in the absence of published information, based on the visual impacts of similar projects.

KOP 1 and KOP 2

Both KOPs 1 and 2 include views of the existing 115-kV subtransmission line and the existing Jean/Roach Dry Lake SRMA. The impact of these projects on visual resources is described above in Section 5.3.1.2. No reasonably foreseeable future projects would be visible from these locations (Table 5-4). The EITP's impact on visual resources for each of these KOPs is described in Section 3.2.3.5. The EITP would result in a major, adverse and unavoidable impact for KOP 1 and a minor adverse impact for KOP 2. However, because no reasonably foreseeable future projects would be visible from this location, the EITP's impacts on visual resources would not contribute to a cumulative visual impact from these two KOPs.

KOP 3

KOP 3 includes views of the existing 115-kV transmission line, the AT&T fiber optic cable, and Jean/Roach Dry Lake SRMA. The impact of these projects on visual resources is described above in Section 5.3.1.2. Reasonably foreseeable future projects visible from this location include the DesertXpress Project, the Calnev Pipeline Expansion Project, and the SNSA. The DesertXpress Project would be installed on a raised berm that would likely be of a darker color than the surrounding neutral tones of the desert; this would introduce contrast with existing colors and would create a new line that bisects the viewshed. The Calnev Pipeline Expansion would be installed underground and would result in negligible operational impacts on visual resources. The SNSA would result in significant and unavoidable changes to the existing landscape, as described above in Section 5.3.1.3. These changes would not be consistent with the VRM Class III designation for the area affected because visual changes associated with the airport would not repeat the existing patterns of the landscape, would dominate the view, and would not achieve the objective of partial retention of the landscape.

The EITP would result in a negligible impact from this KOP due to distance and the speed of travel of motorists along I-15, as described in Section 3.2.3.5. The EITP would be located approximately 6.5 miles from the viewpoint and would replace an existing 115-kV subtransmission line. While the EITP would require larger towers and larger and

more conductors, the incremental difference in size would not be distinguishable at this distance; additionally, the replacement of an existing line would achieve the VRM Class III objective of repeating patterns seen in the existing landscape. Because the impact of the EITP would be negligible at KOP 3, the EITP would not contribute to cumulative visual impacts from this location.

KOP 4

KOP 4 includes a view of the existing 115-kV subtransmission line. The Jean/Roach Dry Lake SRMA, Ivanpah Dry Lake Recreation Area, Primm Casinos, Primm Outlet Mall, Primm Valley Golf Course, Bighorn Electric Generating System, and KFC/Taco Bell could potentially be visible from this location, although the screening wall around the Desert Oasis Apartment Complex has completely obstructed views of these projects.

The only reasonably foreseeable project that would likely be visible from this viewpoint, given the screening wall, is the NextLight Silver State Solar Project. The NextLight Silver State Project would be visible in the middleground between the parking lot perimeter wall and the mountains in the distance. From this distance, solar panels would be visible as flat, geometric forms, which would create a moderate level of contrast with the surrounding environment. These features would create straight lines along the alluvial fan, which would contrast moderately with the more gentle lines of the surrounding environment. The collector fields would appear to be white to black in color and are mostly lighter than the brownish green to gray surrounding environment. The color contrast level is moderate. Further, the features would have a medium to coarse texture, which ~~contrasts~~ would contrast weakly with the surrounding environment. The features would attract attention, but would not dominate the view of the casual observer. The NextLight Silver State Project would likely meet the VRM Class III objectives from ~~this KOP~~ the Desert Oasis Apartment Complex.

The EITP would result in a minor adverse impact from this KOP due to the fact that the project would be replacing an existing transmission line and, though the project would require taller poles and larger and more conductors, the project would repeat the existing patterns of the 115-kV transmission line and would achieve the VRM Class III and VRI Class III objective of partially retaining the character of the landscape. While the EITP would result in weak contrast with these existing lines and forms, the project would not introduce contrast with the existing color or texture in the landscape. When considered in conjunction with the presumed impacts of the NextLight Silver State Solar Project, the cumulative impact to visual resources would likely meet the VRM Class III objectives from this KOP as overall contrast would be weak to moderate.

KOP 5

KOP 5 includes the existing 115-kV subtransmission line, the Ivanpah Dry Lake Recreation Area, the Primm Casinos, and the Primm Outlet Mall. The Molycorp Mine Evaporation Pont, the Molycorp Mine Wastewater Pipeline, the Primm Valley Golf Course, the Bighorn Electric Generating System, and the Caltrans Temporary Batch Plant may be visible from this location but are not visible or distinguishable in the KOP photograph (Figure 3.2-12) due to distance, bearing of the photograph, or a combination of both factors. The impact of these projects on visual resources is described above in Section 5.3.1.2.

Reasonably foreseeable future projects that would be visible from KOP 5 include the NextLight Silver State Project, the First Solar Project, the DesertXpress Project, and the Calnev Pipeline Expansion. As described above, the DesertXpress Project would be installed on a raised berm that would likely be of a darker color than the surrounding neutral tones of the desert; this would introduce contrast with existing colors and would create a new line that bisects the viewshed. The Calnev Pipeline Expansion would be installed underground and would result in negligible operational impacts on visual resources. The ~~NextLight~~ Silver State and First Solar projects are both photovoltaic projects and would be expected to have similar impacts on visual resources. ~~As described above, each of these projects would result in weak contrast to form, weak contrast with existing lines, moderate contrast in color, and weak contrast in texture.~~ From most KOPs, the Silver State project would result in moderate contrasts in form, line, and color, and weak contrast in texture. The First Solar project would result in moderate contrast with the existing form, line, color and weak contrast with texture of the existing environment, which would be consistent, individually with

established VRM Classes for the area. In combination, however, these projects would significantly alter existing views from the Ivanpah Dry Lake bed by introducing new, darker colors into the landscape that would contrast with the existing neutral tones of the desert and attract the attention of viewer groups.

The EITP would result in a minor adverse impact from this KOP. All changes to visual elements from this vantage point due to operation of the EITP would be weak, would not attract the attention of the viewer, and would meet the objectives of VRM Class III. The EITP's contribution to impacts on visual resources from this KOP would be minor.

KOP 6

KOP 6 includes views of the existing 115-kV subtransmission line, the Ivanpah Dry Lake Recreation Area, the Primm Casinos, and the Primm Outlet Mall. Similar to KOP 5 described above, other projects may be visible from this location but are not depicted in the KOP photograph due to the bearing of the photograph or may not be distinguishable due to distance. The impact of these projects on visual resources is described above in Section 5.3.1.2.

Reasonably foreseeable future projects that would be visible from KOP 6 include the NextLight Silver State Solar Project, the First Solar Project, the DesertXpress Project and the Calnev Pipeline Expansion. Impacts of these projects on visual resources would be the same as those described above for KOP 5. In combination, these projects would significantly alter existing views from I-15 by introducing new, darker colors into the landscape that would contrast with the existing neutral tones of the desert and attract the attention of viewer groups. However, it should be noted that the sensitivity for this viewpoint is low~~, as~~ compared ~~to~~ with the moderate to high sensitivity for KOP 5.

The EITP would result in a minor adverse impact from this KOP. The proposed transmission line would replace an existing 115-kV subtransmission line, and the route is approximately 1 mile from the KOP, which is considered within the middleground distance zone. Despite the fact that the EITP would require taller poles and larger and more conductors, the impact on visual resources from this KOP would be minor due to the distance and the fact that the EITP would repeat the patterns created by the existing subtransmission line. The EITP's contribution to impacts on visual resources from this KOP would be minor.

KOP 7

KOP 7 includes views of the existing 115-kV subtransmission line, the existing Eldorado Substation, the Nevada Solar One facility, and the El Dorado Combined Cycle Power Plant. The impact of the Nevada Solar One facility is similar to the visual impacts described for the proposed NextLight Solar Project for KOP 4 above: moderate contrast in form, moderate contrast with existing lines, moderate contrast in color, and weak contrast in texture. The El Dorado Combined Cycle Power Plant is less visually distinct than the Nevada Solar One facility due to distance between the viewpoint and the power plant, but nonetheless introduced weak contrast in color and form.

The Cogentrix Solar Services project would be visible from this location, but is not visible in this KOP photograph due to the bearing of the photograph chosen intentionally to show the visible portions of the proposed project; therefore, there would be no cumulative impacts from this KOP due to combined effects with reasonably foreseeable future projects.

The EITP would result in a negligible impact on visual resources from this KOP due to distance, the speed of viewers driving along Highway 95, and the low sensitivity of the viewpoint. Additionally, all additions to the Eldorado Substation would take place within the existing Eldorado Substation footprint and, while the proposed transmission line would require taller towers and larger and additional conductors, these changes would not be distinguishable at a distance of 3.5 miles, which is considered the middleground distance zone. Therefore, EITP's contribution to impacts on visual resources from this KOP would be negligible.

KOP 8

KOP 8 includes views of the Primm Valley Golf Course, the Caltrans Temporary Batch Plant, and commercial and residential development in Primm, Nevada (although from this location these projects are not visually distinct from one another). The impact of these projects on visual resources is described above in Section 5.3.1.2. The Molycorp Wastewater Pipeline and Molycorp Evaporation Pond are present in this view but not visually distinct. The existing 115-kV subtransmission line is not visually distinct from this distance.

The DesertXpress, Calnev Pipeline Expansion, Joint Port of Entry (JPOE), ISEGS, and First Solar Project would be visible from this location. The impact on visual resources for the DesertXpress Project and the Calnev Pipeline Expansion are described above for KOP 3: the DesertXpress Project would introduce contrast in color and would introduce a new line into the viewshed, and the Calnev Pipeline Expansion would not be visible because it would be installed underground. ~~The impact on visual resources for ISEGS is described in Section 3.2.5.3. ISEGS would result in substantial adverse impacts to six of ten KOPs chosen for that project (CEC and BLM 2009).~~ The ISEGS KOPs that correspond most closely to EITP KOP 8 are KOP 3, 4, and 5, all of which show views of the ISEGS project area for motorists on I-15. ISEGS would result in significant and unavoidable adverse for middleground distance motorists on I-15, viewpoints within the Clark Mountains in the MNP, and viewpoints in the Stateline Wilderness Area, including the Umberci Mine (~~CEC 2010~~ CEC 2010Aand BLM 2010). The JPOE project would require the expansion of the I-15 corridor and construction of additional structures. From this distance, the JPOE would result in weak contrast in form by introducing new structures into the view, weak to moderate contrast in color depending on the color chosen for the structures, and weak change in line as the existing line of I-15 would be altered. In combination, these projects would significantly alter existing views from I-15 and would result in a major adverse cumulative impact.

The EITP would result in a moderate change in the color of the landform, a weak change in the line of vegetation, and a moderate contrast with existing structures in the background of KOP 8. The changes to the existing environment would be consistent with the VRI Class III designation assigned to these BLM-managed lands because the VRM Class III designation allows for moderate change. Additionally, mitigation measures AES-1, AES-2, and AES-3 would reduce the contrast that would be introduced to the existing colors in the viewshed and minimize the dominance of the substation and microwave tower within the view. Further, if ISEGS is constructed, it would be located between this viewpoint and the proposed Ivanpah Substation. The facilities associated with ISEGS would obstruct any views of the Ivanpah Substation. Therefore, the EITP's contribution to impacts on visual resources from this KOP would be minor.

Scenic Vistas

This section discusses the combined effects on scenic vistas of the EITP and past, present, and reasonably foreseeable projects. The relevant impact of the EITP is IMPACT AES-1: Adverse Impact to a Scenic Vista. There are no designated scenic vistas in the vicinity of the EITP; however, for the purposes of this analysis, the South McCullough Wilderness Area is treated as designated scenic vistas because the BLM manages these lands according to the most stringent restrictions to protect visual resources (VRM Class II). As discussed above for KOP 1 and KOP 2, no cumulative projects would be visible from this location, so no cumulative impact would occur.

Lighting and Glare

This section discusses the combined effects on visual resources due to the introduction of new sources of light or glare of the EITP and past, present, and reasonably foreseeable projects. The relevant impact of the EITP is IMPACT AES-4: Create a New Source of Light or Glare. EITP lighting would be shielded, directed downward, and used only for emergency repairs or maintenance. The EITP's contribution to light and glare from the substation would be infrequent and less than significant. It is possible that project lighting would be required for some towers within 20,000 feet of the SNSA, if the airport is approved and constructed. ~~MM-HAZ-2 required the applicant to consult with the Federal Aviation Administration (FAA) to determine whether a Hazard/No Hazard Determination is required for the EITP and, if so, if lighting would be required for structures within 20,000 feet of the proposed airport. If so, the EITP could contribute to cumulative impact to visual resources by introducing a new source of light into the landscape.~~

The Applicant has filed for a Hazard/No Hazard Determination with the Federal Aviation Administration (FAA) to determine whether the additional lighting is required for the EITP. If so, the EITP could contribute to cumulative impact to visual resources by introducing a new source of light into the landscape.

The projects considered in the cumulative scenario might result in cumulatively considerable impacts to visual resources by introducing new sources of light and glare. Solar thermal projects planned in the region that would use power tower technology, such as ISEGS, or any projects that intended to use sterling dish technology, would introduce highly reflective surfaces into viewsheds, which would create glare and contribute to significant cumulative impacts. Additionally, the ISEGS project would require five to ten foot tall day and nighttime strobe lighting on top of its 459 foot power towers under FAA regulations. This lighting would introduce a new source of light into viewsheds and, therefore, would also contribute to considerable cumulative impacts under this criterion. The proposed Ivanpah Substation would have a negligible contribution to cumulative impacts under this criterion because the lighting would be infrequent, shielded to prevent light spillage, and directed downward. If the EITP is required to install safety lighting on the proposed transmission towers near the SNSA, the EITP would contribute to impacts to visual resources under this criterion.

5.3.1.5 Alternatives

Because no activity is associated with the No Project Alternative, there would be no impacts to visual resources under this alternative. Views from the locations described above would not be altered in any way under the No Project Alternative.

The transmission route alternatives were developed to decrease impacts to specific resources, such as the Ivanpah Dry Lake, residents of the Desert Oasis Apartment Complex, or to address land use concerns near the existing Eldorado Substation. Each alternative deviates from the existing ROW, and all the deviations would result in increased visual contrast. However, these minor route variations are close to the existing transmission line and each would be the same distance from potential viewer groups and the cumulative projects considered in this analysis. Because the viewing groups and viewing distances for the proposed project and the alternatives would be similar, the alternatives' contribution to cumulative impacts to visual resources would be similar to those of the proposed project although incrementally greater due to the fact that new ROW not visually associated with existing ROWs would be required which would result in increased visual contrast.

The Golf Course Telecommunications Alternative and the Mountain Pass Telecommunications Alternative would both require additional undergrounding along Nipton Road and underbuilding on existing distribution lines. Undergrounding would require additional trenching along Nipton Road, within view of the Mojave National Preserve, which would temporarily increase visual contrast; however, once installed, the undergrounded segment of the telecommunications line would not be visible. The segments of the telecommunications line that would be underbuilt on existing distribution lines would result in the same impact to visual resources as the portion of the line that would be underbuilt on the Eldorado-Lugo transmission line. The Golf Course Telecommunications Alternative would require an additional segment of undergrounding under the Primm Valley Golf Course. The portion of the telecommunication line that would be installed under the golf course would result in increased visual impacts to golf course users during the construction period but would not impact views following construction. A portion of the Mountain Pass Telecommunications Alternative would cross through BLM land with a VRI Class II designation, which has a higher level of visual sensitivity than the proposed telecommunications path, which crosses BLM land with VRI Class III designation in California. Both these alternatives would have slightly higher impacts to some viewer groups than the proposed project during construction but would not introduce greater long-term visual contrast than the proposed project. Therefore, they would have similar contribution to cumulative impacts to visual resources as would the proposed project.

5.3.1.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP and ISEGS projects. The section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the CEC FSA addendum and the BLM's FEIS. In addition, the CEC's Final Decision evaluated the cumulative effects of ISEGS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~The ISEGS visual analysis determined that the visual impacts of the ISEGS project would be cumulatively significant and unavoidable with respect to the immediate project viewshed. The anticipated cumulative impacts of the ISEGS project in combination with foreseeable future local projects in the Ivanpah Valley would thus be considerable and potentially significant (CEC and BLM 2009).~~ Both the BLM's FEIS and the CEC Final Decision concluded that ISEGS, First Solar, and the Silver State solar projects—along with the existing Bighorn Generating Station, proposed Ivanpah Energy Project, and City of Primm—would be visible within middle-ground distance to I-15 motorists and would be cumulatively dominant from viewpoints in the Clark Mountains and within the Mojave National Preserve. This cumulative effect would be substantially more adverse than the significant direct impacts of ISEGS, both from I-15 and from the Preserve (BLM 2010 and CEC 2010a).

The BLM's and the CEC Final Decision visual analysis of ISEGS determined that the visual impacts of the ISEGS project in conjunction with the existing Primm Valley Golf Course, the Joint Port of Entry, Desert Xpress, and other reasonably foreseeable local projects would have an adverse cumulative visual effect on motorists on I-15 because the view would be converted to an urbanized developed foreground and would intrude on the scenic views of the Clark Mountains. In addition, there is the likelihood of cumulative light pollution effects from the anticipated and existing night-time light sources. In addition, the BLM's analysis concluded that the coincidence of the construction of EITP, ISEGS, Desert Xpress, Silver State, and other projects would have an adverse effect on visual resources through the introduction of new color, texture, and lines in the viewshed. Therefore, the anticipated changes to the viewsheds from ISEGS and the reasonably foreseeable projects would have an adverse cumulative impact. Both the BLM and CEC concluded that the potential impacts of the ISEGS project in combination with foreseeable future local projects in the Ivanpah Valley would be cumulatively considerable (BLM 2010 and CEC 2010a). The CEC FSA Addendum made the same conclusions that the ISEGS project would have significant and unavoidable adverse cumulative visual impacts within the immediate project viewshed, essentially comprising foreseeable future projects in the Ivanpah Valley; and that there would be cumulative impacts from the foreseeable future solar and other renewable energy projects within the Southern California Mojave Desert (CEC 2010b).

Cumulative Impact of the Whole of the Action / Cumulative Action

The ISEGS project would be visible from I-15, the Ivanpah Dry Lake, the Clark Mountains, the Stateline Wilderness Area, and Primm, Nevada. The Whole of the Action / Cumulative Action (the combined ISEGS and EITP) would unavoidably alter the viewshed. As determined by the documents mentioned above that analyzed the potential impacts of ISEGS ~~FSA/DEIS~~, the combination of the Whole of the Action / Cumulative Action and the foreseeable projects ~~could~~ would contribute to considerable cumulative visual impacts. Therefore, the whole of the action / cumulative action would have a potentially unavoidable significant contribution to considerable cumulative visual impacts for motorists along I-15, recreationists on the Ivanpah Dry Lake, dispersed recreationists in the Clark Mountains and Stateline Wilderness Area, and residents of or visitors to Primm, Nevada.

5.3.2 Air Quality and Greenhouse Gases

5.3.2.1 Geographic Extent and Timeframe

Air quality impacts resulting from the EITP could occur over the entire route, which includes the natural basin formed within the Ivanpah Valley and Eldorado Valley (as formed by the Spring Mountains, Clark Mountains, New York Mountains, Highland Mountains, and McCullough Mountain Ranges). The potential cumulative impact area encompasses two air basins, two counties, and two local air quality jurisdictions. Since the proposed project has negligible direct operating emissions, this cumulative impact discussion focuses on construction impacts. Therefore, the timeframe for this analysis is the 18 months of construction. Construction impacts are localized and of short duration. Therefore, only projects within 1 mile of the route are considered projects that when combined with impacts from the EITP could contribute to cumulative impacts. Additionally, only projects with construction scheduled concurrently in the same area as the EITP are considered as possible contributors to cumulative impacts.

5.3.2.2 Past and Present Project Impacts / Existing Cumulative Conditions

As discussed previously, EITP construction would take place in desert, rural areas where population is sparse, with the exception of Primm, Nevada. The presence of I-15 and other state routes facilitates travel to, from, and within California and Nevada. The Bighorn Electricity Generating Facility has facilitated growth within Primm. The Molycorp Mine, Bighorn Electricity Generating Facility, and the traffic throughout the Ivanpah Valley generate emissions that affect the current ambient air quality in the region. Air quality, in general, reflects current regional emissions; therefore, this discussion focuses on present conditions and the potential contribution of reasonably foreseeable future projects.

The EITP would be located partially in California, within the Mojave Desert Air Basin. Local air quality in that area would be administered by the Mojave Desert Air Quality Management District (MDAQMD). The EITP would also be located in Clark County, Nevada; local air quality there would be administered by the Clark County Department of Air Quality and Environment Management (DAQEM). The section of the Mojave Desert Air Basin in which EITP activities would occur is currently designated as nonattainment for particulate matter less than or equal to 10 micrometers in diameter (PM_{10}) with respect to National Ambient Air Quality Standards (NAAQS) and as nonattainment for ozone and PM_{10} with respect to California Ambient Air Quality Standards (CAAQS). The portion of Clark County in which EITP activities would occur is designated as nonattainment for ozone with respect to NAAQS. Ambient air quality for the area is described in detail in Section 3.3.1, "Environmental Setting." Since the EITP would be located in areas designated as nonattainment, any significant increase in emissions of nonattainment pollutants (or precursors) could impact air quality adversely.

5.3.2.3 Reasonably Foreseeable Future Projects and Changes

Only the projects listed in Tables 5-1 and 5-2 and shown in Figure 5-1 are considered potential contributors to cumulative impacts. ~~They have the potential to temporally overlap emissions with construction of the EITP, because they are located within 1 mile of the EITP.~~ Only those projects that have concurrent construction and are located within 1 mile of EITP would contribute to cumulative emissions. However, as indicated in Table 5-3, the construction schedule of many of these projects is uncertain, so the construction periods of several projects may not coincide with the EITP.

From southwest to northeast, the proposed Eldorado–Ivanpah 230-kV transmission line would traverse the proposed locations of the ISEGS and First Solar projects, as well as Ivanpah Dry Lake, which is used for recreation in California. Once the proposed transmission line crossed the California-Nevada border, it would be located within 1 mile of all structures in Primm, including the existing rail line, the proposed location of the DesertXpress rail line, the proposed location of the Calnev Pipeline Expansion, and the proposed location of NextLight's Silver State Solar Project.

5.3.2.4 Cumulative Impact Analysis

The potential for air quality impacts of the EITP to combine with the effects of other projects within the geographic extent and timeframe of the cumulative analysis is described below. Since the EITP would have negligible operating emissions, the cumulative impact analysis focuses on construction impacts, which would be localized and of short duration. As discussed above, only projects within 1 mile of the EITP route, as well as projects that would generate emissions during construction of the EITP, are considered for analysis of cumulative impacts. Additionally, only new projects with construction or operating emissions that would occur at the same time as the EITP's construction are considered as part of this cumulative impact analysis; existing emission sources are considered part of the existing ambient background cumulative condition.

A cumulative impact analysis of greenhouse gas (GHG) emissions for the EITP is provided in Section 3.3, "Air Quality and Greenhouse Gases." The analysis in Section 3.3 considers the EITP's contribution to global climate change, which was determined to be less than significant. No further analysis of GHG emissions is included in this section.

Construction Impacts on Air Quality

This section discusses the combined effects on air quality during construction of the EITP and other past, present, and reasonably foreseeable projects. The relevant impacts of the EITP are IMPACT AIR-2: Temporary Ambient Air Quality Impacts Caused by Construction Activities Would Violate or Contribute Substantially to an Air Quality Violation; IMPACT AIR-3: Temporary Emission Increases of NO_x, VOCs, and PM_{10} during Construction Would Contribute to a Cumulatively Considerable Net Increase of a Criteria Pollutant in a Non-Attainment Area; and IMPACT AIR-4: Temporarily Expose Sensitive Receptors to Substantial Pollutant Concentrations.

Construction of the EITP would take 18 months and would generate emissions of carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), sulfur dioxide (SO_2), PM_{10}, and particulate matter less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$). Ozone is not emitted directly from emission sources but is created in the atmosphere via a chemical reaction between NO_X and VOCs in the presence of sunlight; these compounds are referred to as ozone precursors. The estimated average daily emissions would exceed MDAQMD daily construction emission significance thresholds for NO_X, PM_{10}, and $PM_{2.5}$. This threshold would not necessarily be exceeded daily, but it could be, if all components of the EITP were to be constructed simultaneously. The emissions would be localized to those locations under construction. Facilities such as the Bighorn Electric Generating Station and other existing projects shown in Tables 5-1 and 5-2 are currently generating emissions, and those emissions are factored into the evaluation of air impacts discussed in Section 3.3, "Air Quality."

Construction of the foreseeable projects within 1 mile of the EITP would generate similar types of emissions and could contribute cumulatively to impacts to air quality. Individually, the foreseeable projects could exceed the daily construction emission thresholds for the same or different criteria pollutants as the EITP. As indicated in Table 5-3 and Figure 5-1, some projects could have temporally and spatially overlapping construction. Table 5-6 provides the estimated daily emissions of the EITP, ISEGS, and ~~ISEGS~~ Silver State. These are the only projects for which there are publicly available emissions data for this area.

Table 5-6 Estimated Daily Construction Emissions of Criteria Pollutants for the Proposed Project and Other Foreseeable Projects[1]

Criteria Pollutant	Maximum Daily Emissions (lb/day)				MDAQMD Daily Emission Significance Threshold (lb/day)
	Proposed Project		ISEGS	Silver State	
	CA[1,2]	NV[2,3]	CA[3,4]	NV[4]	
CO	164	113	~~509~~ 643	484	548
NO_X	331	201	~~500~~ 588	607	137
VOC	39	23	~~63~~ 81	69	137
SO_2	0.9	1.2	~~2~~ 2.1	9	137
PM_{10}	401	218	~~285~~ 385	1,631	82

Notes:

[1] ~~Only data on the ISEGS project were publically available during the preparation of this Draft EIR/EIS.~~

[2,1] Construction includes removal of the 115-kV line, installation of the 220-kV and 33-kV lines, construction of the Ivanpah Substation, and installation of the telecommunication line

[3,2] Construction includes installation of the 220-kV line, expansion of the Eldorado Substation, replacement of the Eldorado–Lugo line, and installation of the telecommunication line

[3] Construction for this project would only take place in California (BLM 2010)

[4] Construction for this project would only take place in ~~California~~ Nevada (BLM 2010a)

The construction emissions estimates for ~~ISEGS are likely to be comparable to those for~~ the other solar thermal projects proposed in the area, such as the First Solar project, are likely to be comparable to those for the ~~NextLight~~ ISEGS and Silver State ~~Solar Project~~ projects. Given the daily and annual emission estimates, and since the EITP, ISEGS, DesertXpress, and Calnev could occur concurrently, cumulative temporary air quality impacts could occur. These temporary cumulative increases in criteria pollutants could lead to or contribute to violations of ambient air quality standards. In addition, increases in PM_{10}, NO_x, and VOCs from these and other reasonably foreseeable future projects could contribute to a considerable net increase of criteria pollutants in a nonattainment area. Section 3.3.4, "Mitigation Measures," includes a summary of measures to be implemented to mitigate project construction emissions, including the use of low-emission equipment and enhanced fugitive dust controls. These mitigation measures are not expected to reduce emissions from EITP construction activities to below the MDAQMD daily significance thresholds. Thus, the EITP could have a potentially significant and unavoidable contribution to these cumulative impacts.

Diesel particulate emissions also would be generated during project construction. The only receptor that could be exposed to short-term increased pollutant concentrations are residents of the Desert Oasis Apartment Complex. The estimated construction time at this location for the EITP is 2.5 weeks. Installation of the Calnev Pipeline is likely to take several days to install in the area near the Desert Oasis Apartment Complex. Although possible, it is unlikely that these projects would have overlapping construction schedules at this location. Even if the construction schedules overlapped, construction activities would be only for several days in the area of potential exposure; therefore, there would not be a significant cumulative impact to this receptor.

Objectionable Odors

This section discusses the combined effects associated with odors generated during construction of the EITP and other past, present, and reasonably foreseeable projects. The relevant impact of the EITP is IMPACT AIR-5: Temporarily Create Objectionable Odors due to Fuel Combustion that would affect a Substantial Number of People. Vehicle and equipment emissions odors during construction could be perceptible by people when construction was occurring in Primm. No other location along the EITP route has a substantial number of people. Construction in Primm would occur over a 2.5-week period near the Desert Oasis Apartment Complex. As discussed above, although unlikely, the Calnev Pipeline Expansion could have an overlapping construction schedule at this location, but the overlap would only be for a day or two. Even if the construction schedules overlapped, construction activities would be only for several days in the area of potential exposure, there would not be a significant cumulative impact.

5.3.2.5 Alternatives

The No Action Alternative involves no activity; therefore, no emissions would be generated. This alternative would have no direct or cumulative impact on air quality.

Because the alternative transmissions routes and telecommunication alternatives simply vary the route of the proposed project and all the same components would be built, air emissions that would be generated from the alternatives would be similar to those from the proposed project. The amounts of emissions would vary, given the changes in distances of the transmission line and telecommunication route. However, for all the alternatives, contributions to cumulative air quality impacts would be similar to those of the proposed project.

5.3.2.6 Whole of the Action / Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP and ISEGS projects. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and then evaluates the combined effects of the EITP and ISEGS.~~ This section summarizes the cumulative analysis presented in the CEC Final Decision and the BLM FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~The ISEGS FSA/DEIS determined that cumulative impacts would occur under the following circumstances:~~

- ~~As a result of any project emissions of nonattainment criteria pollutants and their precursors (NO_x, VOCs, and PM_{10}); these are considered CEQA-significant cumulative impacts that must be mitigated~~
- ~~As a result of a significant contribution to GHG emissions~~

~~The ISEGS cumulative analysis for air quality determined there could be significant temporary impacts during construction of other projects in the project vicinity, most notably from construction traffic and fugitive dust associated with other renewable energy projects, a proposed airport, and a commercial/residential development in the town of Jean.~~

~~In the long term, several of the developments would have beneficial impacts. For example, the high-speed train would reduce traffic emissions on I-15, and the renewable energy projects would reduce emissions within the area of the Western Electricity Coordinating Council. No additional cumulative air quality impact modeling analysis was performed. While adverse cumulative impacts would likely occur, no CEQA-significant cumulative air quality impacts are expected after implementation of recommended project mitigation measures. However, because there are a large number of renewable projects currently proposed for development in the desert southwest, it is appropriate that emissions reduction practices be integrated into project proposals to reduce any potential cumulative effects, including construction emissions of criteria pollutants and potential contributions to region ozone and particulate matter and haze.~~

~~While ISEGS would emit some GHG emissions, its contribution to the system build-out of renewable resources in California would result in a net cumulative reduction of GHG emissions from new and existing fossil resources. The ISEGS project would emit considerably less GHG than would existing power plants and most other generation technologies, and thus would contribute to continued improvement of the electricity system GHG emission rate average for the western United States, and, specifically, California. The ISEGS project would lead to a net reduction in GHG emissions across the electricity system that provides energy and capacity to California. The project would result in a cumulative overall reduction in GHG emissions from the state's power plants, would not worsen current conditions, and would thus not result in CEQA impacts that would be cumulatively significant.~~

BLM's FEIS and CEC's Final Decision concluded that most reasonably foreseeable future projects would create minimal long-term emissions, but construction emissions of the other renewable energy facilities, the airport, and other projects would have high temporary emissions from construction vehicles and fugitive dust (CEC 2010a and BLM 2010). However, because the reasonably foreseeable projects would have to implement mitigation measures, no NAAQS are likely to be exceeded (BLM 2010). BLM and CEC also determined that in the long-term, several projects, such as the Desert Xpress would have beneficial impacts on reducing traffic emissions on I-15. In addition, the renewable energy projects would reduce emissions associated with fossil-fuel burning power plants (CEC 2010a and BLM 2010).

CEC concluded that CEQA significant cumulative air quality impacts would not be expected after implementation of the Conditions of Certification and best practices in the construction and operation of ISEGS and other renewable power plants in the southwest desert and any potential cumulative effects will be reduced, including effects from criteria pollutants and their contributions to region ozone and particulate matter and haze (CEC 2010a).

ISEGS would emit a limited amount of greenhouse gases. CEC and BLM analyzed the potential cumulative impact in the context of its effect on the electricity system, resulting GHG emissions from the system, and existing GHG regulatory requirements and GHG energy policies. CEC concluded that ISEGS would not cause or contribute to a significant adverse cumulative impact on GHG, and would decrease GHGs through the generation of electricity in California (CEC 2010a). BLM concluded that the potential generation or reduction of GHG from ISEGS would neither have an adverse or beneficial impact on global climate.

Cumulative Analysis of the Whole of the Action / Cumulative Action

As discussed previously, concurrent construction of the EITP, ISEGS, and other foreseeable projects would be likely to result in considerable cumulative impacts to air quality. Therefore, the Whole of the Action / Cumulative Action, combined with the other foreseeable projects, could result in temporary cumulative increases in criteria pollutants that could lead to or contribute to violations of ambient air quality standards. In addition, increases in PM_{10} and the ozone precursors NO_X and VOCs would contribute to a considerable net increase of criteria pollutant in a non-attainment area. The Whole of the Action / Cumulative Action could have a significant contribution to these cumulative impacts. Section 3.3.4, "Mitigation Measures," of this report includes a summary of measures to be implemented to mitigate project construction emissions, including the use of low-emission equipment and enhanced fugitive dust controls. These mitigation measures are not expected to reduce emissions from project construction activities to below the MDAQMD daily significance thresholds. Thus, the EITP could have a potentially significant and unavoidable contribution to these cumulative impacts.

Since ISEGS is not located near any residential center, the cumulative impacts associated with odor and exposure of sensitive receptors to diesel particulate emissions would be similar to the proposed project. That is, there would not be a cumulatively significant impact to either. Since the EITP would not contribute to air quality impacts during operations of ISEGS, the Whole of the Action / Cumulative Action impacts during operation would be the same as those for the ISEGS project alone. These are discussed above and in Section 3.3, "Air Quality and Greenhouse Gases."

5.3.3 Biological Resources

5.3.3.1 Geographic Extent and Timeframe

Environmental analysis for biological resources is confined by the geographic boundaries of the region in which the EITP is sited. Therefore, cumulative biological impacts associated with the EITP were evaluated within an area that extends west to the Mesquite Valley, east to the Eldorado Valley, and south to the Ivanpah and Piute valleys. This area—the cumulative impact area—is shown in Figure 5-5.

The cumulative impact area reflects natural watershed boundaries and encompasses the local ranges of species that may be affected by the EITP and other projects. The cumulative impact area is an expansion of the area used to assess

potential biological impacts of the EITP; this expansion facilitates an evaluation of cumulative impacts on a regional, landscape-level scale. Analysis of cumulative impacts will assess regional impacts on wildlife corridors and species impacts resulting from cumulative habitat fragmentation and loss.

Cumulative loss of biological resources over time from the EITP was assessed through review of existing (present) projects' disturbance legacy and by considering the timeframe for implementation of future projects. The extent of temporal cumulative effects would depend on construction schedules for new projects and the expected operational life of existing and proposed projects. For instance, concurrent construction disturbance would cause short-term but intense impacts in the area, whereas phased construction among projects could cause chronic but less intensive disturbance impacts. For many projects, the extent of biological resource impacts may extend beyond the life cycle of the project due to permanent habitat removal.

5.3.3.2 Past and Present Project Impacts / Existing Cumulative Conditions

The EITP would be constructed in an area that supports a broad variety of biological resources. The resources within the cumulative impacts area are summarized here, and details are given in Section 3.4, "Biological Resources." The entire EITP is within the Mojave Desert biome, which is comprised of a diverse range of habitat types typical of those found in the Mojave Desert. These habitat types include desert scrub, desert wash, and scattered desert woodlands. The cumulative impact area also includes several dry lake beds, numerous drainages, and areas relatively devoid of native vegetation including developed areas, paved roads, highways, access roads, and other disturbed areas associated with ongoing mining operations. Invasive and noxious weed species have been identified throughout the cumulative impact area.

The area supports habitat for, and populations of, numerous special-status flora and fauna, as described in Section 3.4. These include species under federal and/or state protection, including desert tortoise, desert bighorn sheep, Gila monster, burrowing owl, and other sensitive species in California and Nevada.

Land use in the cumulative impacts area has been historically altered by human activities over the past century (i.e. development has been in earnest at least since the mid-1900's), resulting in conversion of undeveloped land and habitat loss, fragmentation, and degradation. This habitat loss and fragmentation has direct and indirect impacts on special-status species in the cumulative area. Direct effects to special-status wildlife and plants include potential 'take' (injury and/or mortality) of an individual. Indirect effects include alteration of wildlife behavior, loss of genetic pool for plants and wildlife through take, and lowered animal breeding success due to behavior changes. Existing projects such as the Bighorn Electric Generating System, the Eldorado Energy Combined Power Plant, Primm Valley Golf Course, Primm Casinos, Nevada Solar One, and small and large-scale mining projects have permanently removed or altered approximately 2,900 acres of native desert habitat in the cumulative impact area. Project features such as continuously maintained access roads, paved roads and highways, and paved footprints for infrastructure have permanently altered the desert valley habitat. Additionally, ongoing recreational activities and human presence within the Ivanpah Dry Lake Recreation Area and Jean/Roach Dry Lake SRMA disturb wildlife communities on approximately 238,000 acres. The dry lakes themselves, where most of the recreational activities take place, provide significant habitat for only a small suite of plant and wildlife species due to the harsh saline environment and naturally compacted soils. These commercial, industrial, and recreational activities have been present in the area for several decades and will continue into the foreseeable future.

Most of the existing projects are near I-15, which bisects the cumulative impact area and runs between several mountain ranges. This development pattern has resulted in a mosaic of habitat degradation along a linear corridor, and potential barriers and divisions of terrestrial wildlife between the east and west side of the I-15 highway. Some species are more susceptible to habitat fragmentation than others. Wide-ranging mammals and reptiles such as the desert bighorn sheep, badger, Gila monster, and desert tortoise are more strongly negatively affected by habitat fragmentation, as they need larger territories in which to forage and maintain genetic viability of populations. Smaller animals such as desert rodents and lizards, and migratory avian species are generally not as strongly impacted by larger-scale habitat fragmentation.

\\Prtbhp1\gis\SanFrancisco\Ivanapah\Data\Analysis\CummulativeProjects\March2010_updates_per_commnets\tables\Surrounding_Projects.mxd 04/02/2010

LABEL	NAME	STATUS	Acreage*
1	Bighorn Electric Generating Station	Existing	86.9
2	Primm Casinos	Existing	127.8
3	Primm Valley Golf Course	Existing	531.3
4	Primm Outlet Mall	Existing	38.7
5	Ivanpah Dry Lake RA	Existing	12,855.3
6	Molycorp Mine	Existing	862.4
7	Colosseum Mine	Existing	289.9
8	Desert Oasis Apartments	Existing	13.5
9	Molycorp Mine Evaporation Pond	Existing	355.5
10	AT&T FiberOptic Cable	Existing	NA**
11	SCE 115 kV Transmission Line	Existing	NA**
12	Molycorp Wastewater Pipeline	Existing	NA**
13	Jean/Roach Dry Lake SRMA	Existing	224,931.4
14	SNSA	Pending	5,996.6
15	El Dorado Energy Combined Cycle Power Plant	Existing	138.2
16	Nevada Solar One	Existing	400.5
17	KFC/Taco Bell	Existing	3.6
18	Kern River Pipeline	Existing	NA**
19	Goodsprings Waste Heat Recovery Plant	Existing	565.8
20	I-15 Mountain Pass Truck Lane	Existing	NA**
21	Clark Mountain and Crescent Peak Allotment Lease	Existing	236,723.2
A	First Solar Development	Pending	5,433.4
B	SNSA Ivanpah Airport Environs Overlay	Pending	16,579.6
C	Desert Xpress	Pending	NA**
CC	Searchlight Wind Energy Corp	Pending	19,886.7
DD	BullFrog Green Energy	Pending	3,352.2
E	Joint Port of Entry	Pending	324.7
F	Temporary Batch Plant	Existing	32.4
FF	Cogentrix Solar Services	Pending	640.8
G	Cogentrix Solar Services	Pending	29,271.6
I	Iberdrola Renewables	Pending	1,872.6
J	Power Partners SW	Pending	3,874.0
K	Brightsource ISEGS	Pending	3,564.5
Q	Nextlight Renewable Power	Pending	2,967.0
S	CalNev Pipeline Expansion Project	Existing/Pending	NA**
W	Transwest Transmission Line	Existing	NA**
Z	Oak Creek Energy Systems/Desert Research Inst	Pending	35,530.5

* Cumulative project areas are approximated reflecting the project right-of-way and not necessarily the actual or final project boundary footprint.

** Linear projects not included when calculating overall disturbance acreages.

SOURCE: See source list for Table 5-1 and Table 5-2.

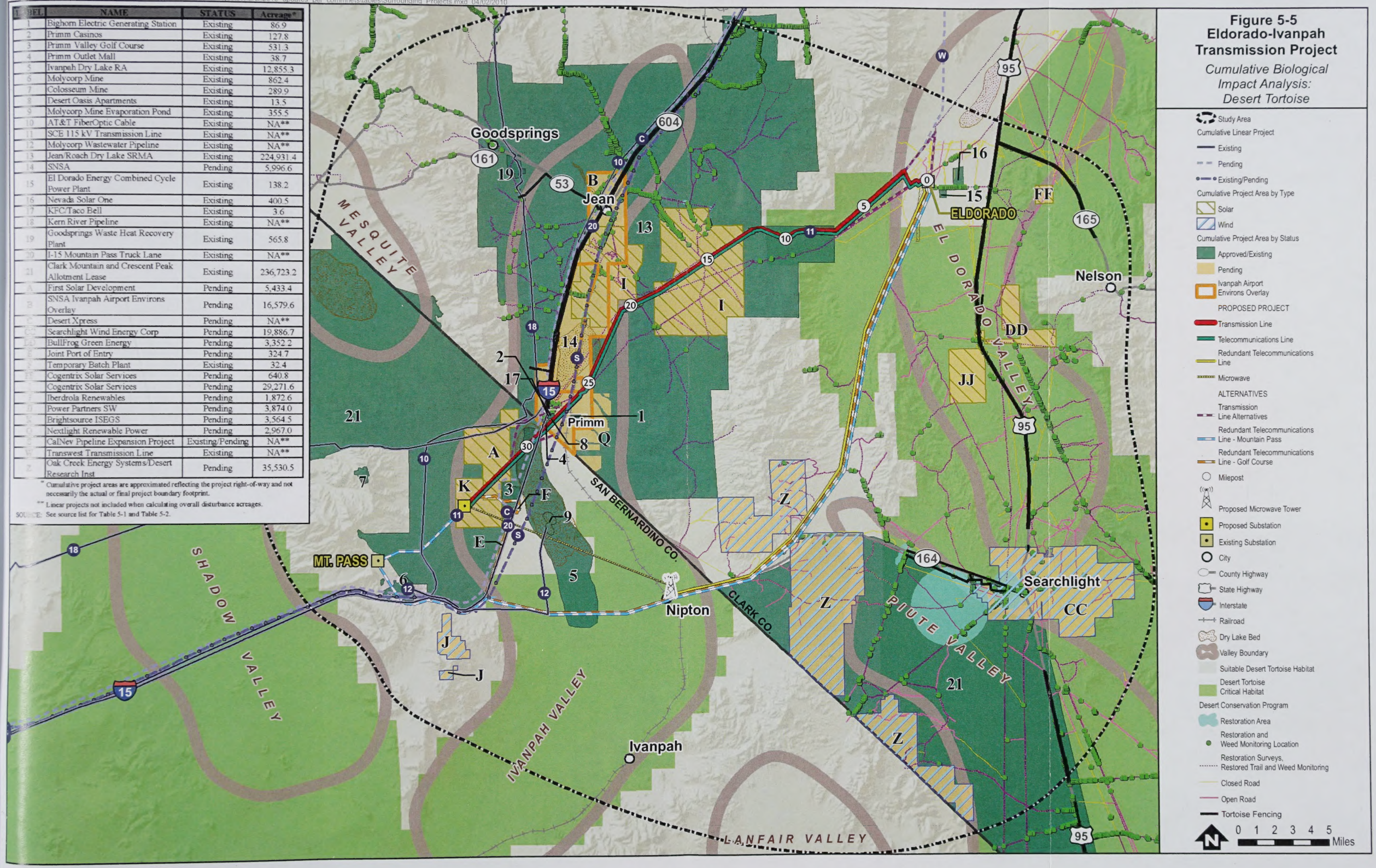

Figure 5-5
Eldorado-Ivanpah Transmission Project
Cumulative Biological Impact Analysis: Desert Tortoise

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Several projects are either no longer operational (e.g., Colosseum Mine) or have changed locations of land disturbance activities over time (e.g., Molycorp Mine evaporation ponds and wastewater pipe discharge locations). Despite cessation of activities, these projects have permanently altered the landscape and use of natural habitats by wildlife. Past physical disturbance such as vegetation removal, soil compaction, and colonization by invasive plant species can prevent or reduce the likelihood of re-colonization of the area by native desert plants. Reducing the cover of native plants can, in turn, make an area unattractive to native wildlife that depend on the native desert vegetation. The impacts from these disturbances can last for many years, as recovery of desert systems has been documented to take anywhere from 30 to 60 years, depending on the vegetation type (e.g., perennials and shrubs take less time to recover than do longer-lived vegetation such as Joshua trees, creosote, or pinyon-pine woodlands) (Carpenter et al. 1986, Rundel and Gibson 1996).

Most of the existing past and present projects in the cumulative area are in the desert valley floor, rather than at the higher mountain elevations. An electrical transmission station (Mountain Pass Substation) is located in the Clark Mountains, numerous transmission lines traverse the ranges in the cumulative area, and the Molycorp Mine is located on the lower slopes of the Clark Mountain Range. The locations of the projects affect different suites of wildlife and plant species, as vegetation colonizing the mountains and desert valleys is unique and provides habitat niches for wildlife. For instance, many desert songbirds and migratory birds use both montane and valley floor vegetation for foraging and nesting; bighorn sheep utilize both the upper mountainous areas during lambing and valley floors for migrating, while desert tortoise remain within the valley floor and lower slopes of the bajadas. Specifically, the existing infrastructure found within the mountains (i.e. Molycorp Mine, Mountain Pass Substation, existing transmission lines) have permanently removed ~~approximately 900 acres~~ over 800 acres of montane and desert valley habitat, and on-going operations result in minor but continuous disturbance to wildlife due to on-going operations and human presence. Many special-status species are sensitive to increased human presence and noise, including desert bighorn sheep and nesting migratory birds. These species would be potential present within the higher elevations of the mountain ranges in the cumulative area.

5.3.3.3 Reasonably Foreseeable Future Projects

Reasonably foreseeable future projects that could impact biological resources in the cumulative impact area represent overall development trends in the Ivanpah and Eldorado valleys. These projects are shown in Figure 5-5 and listed in Tables 5-1 and 5-2. Development in the area is dominated by renewable energy. Major renewable projects require extensive access roads, new transmission lines to tie into the existing electrical grid system, and large swaths of cleared and graded land for infrastructure (e.g., substations, solar farms). Additionally, these projects may introduce new sources of night lighting into the desert environment, via construction activities requiring night-time work and/or FAA-required lighting on structures. As currently proposed, renewable solar and wind projects would impact approximately ~~100,000 acres~~ 112,000 acres of desert and mountain range habitat in the cumulative analysis area. These large project footprints are scattered around and throughout the cumulative area, and in many cases are located within special wildlife habitat management areas. Solar farms are located primarily along the valley floors, while wind projects, which encompass approximately ~~71,000 acres~~ 57,000 acres of habitat, are proposed along the upper mountain slopes and ridges.

Other projects in the cumulative impacts area include several large-scale, long-term transportation infrastructure projects, including DesertXpress, the Joint Port of Entry, and the proposed SNSA. These projects also require large swaths of cleared and graded land for infrastructure placement and could require over ~~23,000 acres~~ 16,000 acres. These projects would generally occur along the I-15 corridor and make use of existing ROWs where native habitats have already been disturbed; however, the width of existing linear disturbance within the cumulative impact area would be expanded. Additional ongoing regional trends that have led to degradation of biological resources in the cumulative impact area include population growth and the subsequent demand for new housing and infrastructure, grazing, and recreational activities. Currently, the demand for desert habitat acreage for these human growth indicators is fairly low.

In Nevada, the U.S. Fish and Wildlife Service (USFWS) is collecting information to prepare an EIS under NEPA for the review of a proposed amendment to the Clark County MSHCP. The amendment would increase the total acres of species habitat (protected under the current MCHCP) that could be disturbed by giving Clark County, the cities, and the Nevada Department of Transportation an Incidental Take Permit (ITP). The permit would allow incidental take of covered species on up to 215,000 additional acres in Clark County. The MSHCP amendment would cover disturbance resulting from, but not limited to, residential and commercial development; utility and transportation facilities and other capital improvements and operations activities; flood control; and development of urban parks and recreation facilities. Additionally, the amendment would revise the permit term to 50 years. The proposed amendment is being prepared under Section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended. The protected species that could be impacted in the proposed amended planning area would be covered species; these are desert tortoise, southwestern willow flycatcher, Las Vegas buckwheat, Yuma clapper rail, yellow-billed cuckoo, and Las Vegas bearpoppy. Clark County, the cities, and Nevada Department of Transportation propose to reduce the number of species covered under the existing permit but may also seek to address and cover additional rare and/or sensitive species (in addition to the six previously mentioned species) that could occur within the planning area. USFWS conducted meetings in October 2009 and the deadline for public comments was October 30, 2009. At this time, a draft/final EIS is not available for review; therefore, the nature of the contribution of this amendment to cumulative impacts can only be evaluated qualitatively. Impacts for covered species could occur from potential habitat disturbance and removal of 215,000 acres of desert habitat within Clark County.

5.3.3.4 Cumulative Impact Analysis

The potential for impacts to biological resources from the EITP to combine with the effects of other projects within the geographic and temporal extent of the cumulative analysis is described below. As described in Section 3.4, "Biological Resources," the EITP would have adverse impacts on biological resources during construction and operation. For the analysis of cumulative impacts, impacts to biological resources were reviewed for the following reasonably foreseeable projects with publicly available environmental information: DesertXpress, NextLight Solar, ~~Table Mountain Wind~~, and ISEGS. At the time of the preparation of this document, ~~No~~ no other quantitative data were available because the environmental documents have not yet been published for the Calnev Pipeline Expansion project, Searchlight Wind Energy, First Solar Development, Iberdrola Renewables, the SNSA, TransWest Express Transmission Project, or any of the other future projects listed in Table 5-1.

Cumulative Impact BIO-C-1: Habitat Fragmentation, Degradation, and Loss

This section discusses the combined effects of habitat fragmentation, degradation, and loss resulting from the EITP and past, present, and reasonably foreseeable projects. The relevant impacts resulting from the EITP are IMPACT BIO-1 through BIO-6.

Cumulative impacts to biological resources can be either additive (that is, directly proportional in severity to the quantity of the resource affected, such as vegetation loss or wetland fill) or exponential. For exponential impacts, increasing levels become disproportionately more substantial if they affect biological features that are critical to the survival of a species. An example of an exponential impact is habitat fragmentation, where the result of the construction of multiple projects in a particular area results in fragmentation of areas that formerly provided contiguous habitat into separate areas too small to support dependent species.

The EITP has a relatively small construction footprint, despite its linear extent, is limited in duration (18 months), and requires a maximum of 190 construction workers. Most of the elements of the EITP would be constructed within an existing ROW where the native vegetation has already been disturbed, with the exception of the Ivanpah Substation, one of the proposed microwave towers, and new access roads, which, together, would temporarily and permanently impact approximately ~~443 acres~~ 372 acres of vegetation (see Section 3.4.1.1, "Existing Conditions"). The EITP would have relatively minor impacts on habitat fragmentation, assuming land temporarily disturbed during construction (~~384 acres~~ 425.9 acres) would be restored to its original state to the greatest extent possible. However, these impacts could be significant when combined with impacts from other regional projects. The development of numerous large-

scale projects, such as ISEGS, DesertXpress, ~~NextLight, Table Mountain~~ Silver State, other wind and solar generation facilities, and the SNSA would result in a substantial permanent conversion (~~over 120,000 acres~~ approximately 112,000 acres) of desert valley and mountain top habitat to industrial/commercial uses. This could have significant effects on a variety of species through direct habitat loss and/or habitat fragmentation.

The EITP, in conjunction with other projects, would result in cumulative impacts on native vegetation communities, including cacti and yucca species, and adversely affect special management areas due to temporary and permanent habitat loss from ground disturbance and inadvertent distribution of noxious weeds, as described in Section 3.4, "Biological Resources." Specifically, ISEGS would disturb approximately 3,600 acres ~~4,073 acres~~ of Mojave creosote scrub, DesertExpress would disturb approximately ~~278 acres~~ 280 acres of mesquite scrub and Joshua tree woodlands, and ~~Nextlight~~ Silver State Solar would disturb 2,967 acres of habitat types including desert scrub, desert wash, and desert woodlands ~~and Table Mountain could disturb approximately 765 acres of Mojave blackbrush scrub, Joshua trees and montane pinyon-juniper woodland~~. Thus, in conjunction with the EITP, cumulative impacts to native desert vegetation communities would be approximately 7,220 acres ~~8,500 acres~~ of disturbance. These impacts would be both temporary and permanent, as restoration of habitat back to its baseline condition has a temporal aspect: creosote, Joshua trees, and conifer forests take much longer to re-colonize an area as opposed to smaller cacti and perennial plant species. ~~Nesting b~~Birds, bats, reptiles, and other wildlife rely on these vegetation types for forage and nesting opportunities. Removal of vegetation and/or long-term restoration efforts could negatively impact common and special-status wildlife. Cumulative impacts from the projects would affect the desert valley vegetation located along the desert floor and lower bajada slopes, as well as vegetation typically characterizing the desert mountain ridges (i.e., pinyon-pine and juniper woodland and upper elevation scrub).

Cumulative impacts from all projects on these habitat resources could be significant. The contribution of the EITP to these cumulative impacts would be short term and limited, due to the short temporal duration of construction and the relatively limited geographical extent of the EITP's impact area. The EITP's contribution to cumulative impacts is further reduced through avoidance and minimization measures. Avoidance measures that would be implemented during construction would include environmental training, use of biological monitors, pre-construction surveys, biological clearance surveys, and flagging of sensitive areas such as critical nursery areas and aquatic resources. If avoidance were not possible, further mitigation measures proposed to reduce cumulative habitat degradation and loss would include engineering drainage crossings to reduce degradation and impacts, using appropriate BMPs to reduce impacts, restoring temporarily disturbed land after construction, and developing and implementing an Invasive Species Management Plan. It is assumed that similar mitigation would be implemented by other projects, which would be subject to separate, independent environmental review. With the incorporation of mitigation, the EITP's contribution to cumulative impacts on habitat would be less than significant and not considerable.

Cumulative impacts on biological resources could be exacerbated as a result of project schedules. Construction of multiple projects within the same time period can result in greater impacts from emissions, noise, construction equipment and vehicle traffic, and overall habitat degradation and loss. If projects were to be constructed consecutively, project impacts would be reduced in intensity but prolonged in duration, resulting in adverse impacts on the life cycles of species and/or resulting in prolonged or permanent displacement of wildlife from critical habitats. If the EITP were constructed simultaneously with other projects, cumulative construction and operation impacts to habitat could increase, although the contribution of EITP would be minor and not significant due to implemented avoidance and minimization measures.

Cumulative Impact BIO-C-2: Special-Status Species

This section discusses the combined effects on special-status species of EITP and past, present, and reasonably foreseeable projects. Special-status species that could be impacted by the California portions of the EITP are listed in Table 3.4-4, and the special-status species that could be impacted by the Nevada portion of the EITP are listed in Table 3.4-5. Special-status species at the federal level include those listed as threatened, endangered, or proposed, and those that are candidates for listing under the Endangered Species Act. The BLM State Director's Office designates sensitive species. In California, plant and animal species are tracked and monitored by the California

Department of Fish and Game via the California Natural Diversity Database. The State of California, through the Fish and Game Code, may also formally designate plants and animals as state-listed threatened or endangered. The California Department of Fish and Game maintains a list of fully protected species that may not be taken or possessed at any time and for which permits are required for scientific collecting and/or relocation (for the protection of livestock). In Nevada, at-risk species are tracked through the Nevada Natural Heritage Program within the Department of Conservation and Natural Resources. The Nevada Natural Heritage Program ranks plant and animal species based on rarity and perceived level of threat. The State of Nevada can fully protect wildlife species through the stipulations of Nevada Revised Statute 501. The state protects "critically endangered" plant species as well as cacti and yuccas under Nevada Revised Statute 527.The relevant impacts from the EITP are IMPACT BIO-1 and BIO-2.

As discussed in Section 3.4, the EITP would result in impacts on special-status plant and animal species that could contribute to cumulative impacts in conjunction with similar impacts from other projects. The EITP would result in habitat impacts to wildlife movement corridors, migratory paths, and critical nursery sites for certain species. Impacts would occur to big game corridors (desert bighorn sheep), general wildlife corridors for species such as large reptiles and wild burro, lambing areas for desert bighorn sheep, and critical habitat found within the EITP that could be used as a movement corridor by desert tortoise. In addition to habitat removal, impacts would result from noise and visual disturbances (including night lighting sources) and increased human/vehicle presence during construction, operation, and maintenance, all of which could have indirect effects such as disruption of normal behavior patterns as well as cause direct injury and/or mortality. Species potentially affected would include special-status plants and several special-status wildlife species (reptiles, mammals, and birds) with potential for significant impacts to desert tortoise, desert bighorn sheep, American badger, and raptors, including the burrowing owl and the golden eagle.

Many of the reasonably foreseeable future projects could also negatively impact special-status plant and animal species in the cumulative impact area. These impacts are discussed generally below in the context of large-scale habitat disturbance and loss because sufficient, comparable data are not available on a project-specific basis to support further quantitative analysis. However, this approach is appropriate as macro-level impacts on habitat communities would result in corollary effects on the plants and wildlife that thrive on the unique desert habitat.

As identified in the environmental documentation for several cumulative projects, the EITP and other reasonably foreseeable future projects could have an adverse cumulative impact on populations and individuals of rare plant species such as Mojave milkweed, desert pincushion, Parish's club-cholla, white-margined beardtongue, rosy two-toned beardtongue, and Aven Nelson phacelia, all of which occur within the cumulative impact area. These plants could be directly removed and/or crushed by construction activities or indirectly affected by increased fugitive dust, erosion, invasive plant propagation, and altered drainage. Several projects have generally assessed impacts to plant species from construction, but specific population numbers and locations of affected plants for ISEGS, ~~NextLight, Table Mountain~~ Silver State, and DesertXpress are not available. However, each of these projects has recommended mitigation measures such as avoidance, salvage, restoration, and compensation to reduce impacts to special-status plants to less than significant. Similar mitigation measures have been included for the EITP to reduce impacts. If these measures are applied over the cumulative impacts area, the EITP would have a negligible contribution to cumulative impacts to special-status plant populations.

Although for many future developments specific data are not available, impacts on desert tortoise and bighorn sheep are quantified here as an example of the extent of wildlife impacts that could occur in desert valley and upper mountain habitat within the EITP cumulative analysis area. Desert tortoise has commonly been used as an indicator species to illustrate broader-ranging potential impacts on desert habitat and wildlife. Bighorn sheep could similarly be used as an indicator of potential impacts to mountainous areas and the wildlife species that utilize that niche such as migratory birds and large mammals.

The range of the desert tortoise encompasses virtually all of the cumulative impact area (Figure 5-5), incorporates most of the habitat types that would be used by other potentially impacted species such as American badger, Gila monster, and desert birds, and includes the locations of the majority of the past, present, and future cumulative

projects evaluated in this analysis. Additionally, tortoise populations have been eliminated or reduced in large parts of their ranges in California and in areas near Las Vegas as a result of human activities and disease (USFWS 2008a). This historical decline, coupled with potential impacts from future projects, makes any future impacts potentially significant. The range of the desert tortoise is limited at higher elevations, as the species is generally not found above 5,000 feet. In contrast, desert bighorn sheep are well-adapted to the higher elevations of desert mountain ranges, and in the EITP cumulative area, are known to occupy the Clark, Spring, and McCullough Mountain ranges. These mountains provide forage, shelter, and potential critical lambing areas for the sheep, in addition to serving as large-scale migratory pathways among the desert valleys.

One potential impact from reasonably foreseeable future projects, including the EITP, could be habitat loss over a large area. The use of both desert tortoise and bighorn sheep as potential indicators for cumulative impacts is appropriate to address large-scale disturbance and/or loss of desert valley and mountain habitat. Coupled with historical losses, this extensive habitat loss would result in significant cumulative impacts. As discussed in Section 5.3.3.2, there are currently approximately 240,500 acres of habitat that have been disturbed (approximately 238,000 acres) and/or converted to infrastructure (approximately 3,000 acres). Reasonably foreseeable future projects are expected to result in approximately ~~120,000 acres~~ 112,000 acres of habitat disturbance/loss. Of that, future wind projects encompass approximately ~~71,000 acres~~ 57,000 acres of upper desert valley and mountain tops within the cumulative study area.

As currently proposed, the EITP would contribute less than 0.060 percent ~~0.1%~~ to future cumulative impacts on non-critical desert tortoise habitat and 0.055 percent ~~0.4%~~ on critical habitat (Table 5-7). A total of approximately 2.0 acres and 94 acres of critical habitat in California and Nevada, respectively, would be impacted by the EITP. The small percentage of desert valley habitat loss from EITP would result in a minor cumulative impact. The EITP would also result in modification of desert mountain habitat within the Clark and McCullough Mountains, affecting approximately 150 acres of mountain pass and lower bajada slope areas. This would be a small contribution (~~0.2%,~~ 0.3 percent or 150/71,000 acres) to cumulative desert mountain habitat loss as compared to other future projects sited in mountainous areas. Overall, contributions from the EITP to habitat loss and potential impacts to special-status wildlife would be minor. However, cumulative impacts on desert tortoise could be major and considerable.

Table 5-7 Impacts on Desert Tortoise Habitat from the EITP and Other Proposed Projects

Desert Tortoise Habitat Type	EITP[1] (acres)	Other Projects[2] (acres)	Total Impacts (EITP + Other Proposed Projects)	Contribution of EITP to Cumulative Impacts (%)
Critical	~~72~~ 96	~~17,979~~ 124,007	~~18,051~~ 124,103	~~0.40~~ 0.077%
Non-Critical	~~301~~ 270	~~310,221~~ 489,648	~~310,522~~ 489,918	~~0.10~~ 0.055%
Total	~~373~~ 366	~~328,200~~ 613,656	~~328,573~~ 614,022	~~0.11~~ 0.060%

Notes:
~~[1] See PEA 2009. These are both temporary and permanent impacts.~~
[1] See SCE 2010. These are both temporary and permanent impacts. Numbers were rounded to the next higher unit.
[2] For data source, see Figure 5-5

MM BIO-12 would require the applicant to coordinate with wildlife resource agencies, provide rigorous clearance surveys and construction monitoring for the desert tortoise, and limit human/equipment interactions with individual tortoises. Documentation of the coordination efforts with wildlife resource agencies will be provided to the CPUC. Implementation of this mitigation measure would reduce the EITP's contribution to cumulative impacts on desert tortoise to less than significant.

Although desert tortoise impacts could be significant, the contribution of the EITP to overall cumulative habitat loss would be short term and limited due to the short duration of construction and relatively small footprint of the EITP's impact area. The EITP's contribution could be reduced to less than significant with implementation of general avoidance mitigation measures. Mitigation measures would include pre-construction surveys, biological monitoring during construction, and preventive measures such as fencing to protect wildlife from injury and entrapment within construction areas. It is assumed that similar mitigation would be implemented by other projects, which would be subject to separate, independent environmental review. If avoidance of impacts to wildlife were not possible, those impacts would be mitigated by species-specific measures detailed in Section 3.4, "Biological Resources." These would include consultation with USFWS, pre-construction surveys, biological monitoring, relocation activities (desert tortoise), and limitations on construction activities and timing. Therefore, with the exception of desert tortoise, the EITP's contribution to cumulative impacts on wildlife species would be minor.

Golden Eagle

Construction and operation of the proposed project and many of the reasonably foreseeable future projects could cause adverse cumulative impacts on golden eagles and golden eagle habitat. Impacts on this species could result from mortality of adults and/or chicks, hunting and energetic interference, nest abandonment, hatching failure of eggs in active nests, or because the project otherwise led to lowered reproductive success.

The construction of the proposed project and many of the reasonable foreseeable future projects could result in 'take' of this species. Construction and traffic could cause abandonment of potential active nests due to the noise and visual disturbances associated with these activities. Additionally, construction disturbances could cause avoidance of suitable foraging habitat or nesting habitat within the cumulative project area. Approximately 129,000 acres of forage habitat could be affected by construction activities of the proposed project and the reasonably foreseeable projects of which approximately 57,000 acres could also be potential nesting habitat that could be disturbed. The 57,000 acres of nesting habitat that could be disturbed is attributable to the future wind projects that would be located on the upper desert valley and mountain tops within the cumulative study area. The proposed project would not result in a substantial amount of foraging or potential nesting habitat affected within the larger surrounding territory available to the eagle. While the impact of the proposed project's contribution is expected to be minor, it would contribute to a potentially considerable cumulative impact given that many of the reasonably foreseeable projects would be constructed simultaneously.

As discussed in Section 3.4.3.5, project operations and maintenance could cause injury and/or mortality as a result of injuries suffered from accidental collision or electrocution with power lines and the associated structures. The replacement of lattice towers with tubular poles would potentially reduce perching opportunities for the eagle, thus potentially reducing electrocution risk. Risk would be further reduced as the proposed new transmission lines and poles will be constructed according to APLIC standards (APM BIO-8), which are designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006). However, collisions and electrocutions could still occur to some individuals during operations. Due to a lack of current data on eagle mortalities from collision and electrocution in the project area, it is currently unknown to what extent such incidents would have on any breeding population of golden eagles in the EITP area.

The operation and maintenance of solar projects could result in the loss of foraging habitat for golden eagle within the footprint of each foreseeable solar project. The loss in foraging habitat could lead to hunting and energetic interference which could result in a decrease in overall fitness of the golden eagle. Golden eagles could be susceptible to injury and/or mortality from collision with power lines associated with the solar project and its associated interconnections. Injury and/or mortality could be a result of injuries suffered from direct collision with the power lines and the associated structures or from electrocution. The total length of new power lines associated with the solar projects would be small in comparison to the existing length of existing power lines in the cumulative project area.

The operation and maintenance of wind projects could result in the injury and/or mortality from collision with the spinning turbine blades and with the interconnect power lines. The operation and maintenance of the wind projects could result in the loss of both foraging and nesting habitat which could result in the decrease of the overall fitness of the golden eagle in the cumulative project area.

To reduce impacts on golden eagles, MM BIO-19 is recommended. MM BIO-19 requires development and implementation of an Avian Protection Plan according to recent USFWS guidance (USFWS 2010). This Plan will outline steps and conservation measures to prevent and reduce impacts on golden eagles and other large raptors. Implementation of this measure would provide compliance with the 'no net loss' standard for golden eagles identified in the Eagle Act Rule, and reduce the overall impacts on the species to adverse and minor.

5.3.3.5 Alternatives

Because the No Project / No Action Alternative involves no activity, there would be no impacts on biological resources under NEPA or with respect to any of the CEQA criteria under this alternative, and there would be no contribution to cumulative impacts.

The alternative transmission routes and the telecommunication alternatives would involve the same project components as the EITP; only the route would vary. The alternatives would result in cumulative impacts similar to those of the proposed project, with the exceptions described below.

Transmission Alternative Routes A, B, and C would have a slightly higher contribution to impacts on native vegetation and listed plant and animal habitat and species because they would involve a larger area of permanent and temporary disturbance. There would also be slightly higher impacts on suitable and critical habitat for desert tortoise and therefore a slightly increased contribution to cumulative impacts on this species. Routes A and B would impact critical habitat within BLM special management areas and within the BCCE conservation area.

Transmission Alternative Routes C and D and Subalternative E would have lower impacts on vegetation directly adjacent to the dry lake and substrate within the dry lake because they would avoid a portion of Ivanpah Dry Lake. However, in avoiding the dry lake, these routes would disturb other previously undisturbed desert scrub habitat areas, which have greater amounts of suitable habitat for desert tortoise. Therefore, these alternative routes would have greater impacts to suitable desert tortoise habitat than would the proposed project. Thus, these alternatives could result in higher cumulative impacts to desert tortoise.

The Golf Course and Mountain Pass Telecommunication Alternatives would contribute to cumulative impacts to the same degree as would the proposed project but would have a higher contribution to cumulative impacts on native vegetation, including upper mountain pinyon-pine woodland, and listed plant and animal habitat and species, including bighorn sheep and montane bird species. This contribution would be associated with a larger area of permanent and temporary disturbance. These alternatives would also contribute more to cumulative impacts associated with inadvertent noxious weed dispersal due to the increased length of disturbance in areas without previous disturbance. Compared with the proposed project, these alternatives would have higher impacts on critical desert tortoise habitat, potential bighorn sheep habitat, and montane bird habitat. Therefore, these two alternatives would have an increased contribution to cumulative impacts on these species.

5.3.3.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the EITP and the ISEGS project combined, in order to assess cumulative impacts from both the generation and transmission aspect of the proposed action. First, the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM is summarized. Next, the combined effects of the EITP and the ISEGS project are evaluated.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC Final Decision, and the BLM FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~The BLM and the CEC (the Staff) have concluded that without mitigation the ISEGS project would contribute substantially to the cumulative impact of significant loss of Ivanpah Valley's biological resources, including the threatened desert tortoise and other special-status species. Impact avoidance and minimization measures described in the Staff's analysis and included in the conditions of certification would help reduce these impacts. However, compensatory measures are also necessary to offset project-related losses and to assure compliance with state and federal laws such as endangered species acts and regulations protecting waters of the state. In the case of special-status plants, impacts would remain significant according to CEQA standards despite compensatory mitigation.~~

The BLM concluded that that the reasonably foreseeable future projects would result in habitat fragmentation or degradation of between 22,227 to 23,104 acres. ISEGS would contribute between 3,564 acres to 4,073 acres of lost habitat or approximately 16% of the habitat impacts of the reasonably future projects. The habitat losses due to ISEGS would contribute the cumulative habitat loss of native plant and wildlife communities, including the threatened desert tortoise and other special status species (BLM 2010).

~~Past and current actions have significantly reduced and degraded the plant communities and wildlife habitat within the Ivanpah Valley, and the ISEGS project would substantially contribute to the further loss of biological resources and genetic diversity of special-status species. Given the ISEGS project's location on a large portion of the Ivanpah Valley, and, in particular, the presence of bajada and alluvial fans that support special-status plant species, a substantial portion of the suitable habitat for these plants would be negatively affected by construction of the ISEGS project. This effect would increase the threat of elimination of the Ivanpah Valley portion of these species' ranges. ISEGS, combined with future proposed projects, would also significantly affect a genetically distinct subpopulation of desert tortoise within the Northeastern Mojave Recovery Unit that occurs in the Ivanpah Valley (Murphy et al. 2007, USFWS 2008b).~~

~~While no precise estimate can be made of the future habitat loss, collectively the ISEGS project and other projects would remove and fragment tens of thousands of acres of additional habitat. The ISEGS project, combined with the proposed 4,000-acre First Solar development immediately to the east, would eliminate a large swath of the higher quality desert tortoise habitat found on the west side of I-15 within the Ivanpah Valley. All of these past, present, and future proposed activities would contribute to the significant loss of Ivanpah Valley vegetation communities, wildlife habitat, and special-status species. With the exception of special-status plant species, this significant cumulative impact may be reduced to less than significant levels with appropriate levels of compensatory mitigation. Cumulative impacts to special-status plants would remain significant according to CEQA standards despite compensatory mitigation.~~

CEC concluded that no precise estimate can be made of the future habitat loss, but collectively the ISEGS project and other projects would remove and fragment tens of thousands of acres of additional habitat. The ISEGS project combined with the proposed 4,000-acre First Solar development would eliminate a large area of the higher quality desert tortoise habitat found on the west side of I-15 within the Ivanpah Valley. All of these past, present, and future proposed activities would contribute to the significant loss of Ivanpah Valley vegetation communities, wildlife habitat, and special-status species. With the exception of special-status plant species, this significant cumulative impact may be reduced to less than significant levels with appropriate levels of compensatory mitigation. Cumulative impacts to special-status plants would remain significant according to CEQA standards despite compensatory mitigation (CEC 2010a).

Cumulative Analysis of the Whole of the Action / Cumulative Action

In combination with ISEGS, the EITP would incrementally contribute to the projected loss of natural vegetation and sensitive natural communities within the cumulative impact area. The combined effects of the conversion of native desert habitat to developed uses associated with past, present, and future projects could exacerbate adverse impacts associated with the EITP and ISEGS through habitat fragmentation and cumulative loss of habitats used by special-status species and sensitive natural communities. Indirect impacts also may be increased as a result of decreased quality of the remaining areas of habitat from habitat fragmentation and adverse effects (e.g., increased stormwater runoff, noise, and disturbance) resulting from increased proximity to commercial and industrial land uses.

Together, the EITP and ISEGS would disturb and/or remove approximately ~~4,500 acres~~ 4,000 acres of desert vegetation, including temporary and permanent impacts to several special-status plants. Of the total habitat ~~acerage~~ acreage, 150 acres would occur within mountainous terrain and the rest (4,350 acres) would occur within desert valley habitat. The EITP has a relatively small construction footprint, despite its linear extent, is limited in duration (18 months), and requires a maximum of 190 construction workers. Most of the elements of the EITP would be constructed within an existing ROW where the native vegetation has already been disturbed. However, the construction of the Ivanpah Substation, as part of both EITP and ISEGS, would require a large swath of habitat disturbance/removal in previously undisturbed, higher quality desert vegetation. ISEGS would therefore have a relatively large construction footprint, would require 4 years of construction, and require a relatively large workforce (Table 5-3). The geographic and temporal extent of impacts from EITP in combination with ISEGS would result in substantial contributions to cumulative impacts in the cumulative analysis area.

The EITP and ISEGS projects would contribute ~~1.41%~~ 0.783 percent of the future cumulative impacts on non-critical desert tortoise habitat and ~~0.4%~~ 0.077 percent on critical habitat (Table 5-8). The percentage of desert valley habitat loss from EITP and ISEGS would result in a substantial cumulative impact without mitigation. The EITP would also result in modification of desert mountain habitat within the Clark and McCullough Mountains, affecting approximately 150 acres of mountain pass and lower bajada slope areas. ISEGS would not impact mountainous areas as it is located wholly within the desert valley floor. There would be a small contribution (~~0.2%~~ 0.3 percent, or ~~150/71,000 acres~~ 150/ 57,000 acres) to cumulative desert mountain habitat loss from the combined EITP and ISEGS as compared to other future projects sited in mountainous areas. Overall, contributions from EITP and ISEGS to habitat loss and potential impacts to special-status wildlife would be major, including cumulative impacts on desert tortoise and special-status plants.

Table 5-8 Impacts on Desert Tortoise Habitat from the EITP/ISEGS and Other Proposed Projects

Desert Tortoise Habitat Type	EITP and ISEGS[1] (acres)	Other Projects[2] (acres)	Total Impacts (EITP/ISEGS + Other Proposed Projects)	Contribution of EITP/ISEGS to Cumulative Impacts (%)
Critical Habitat	~~72~~ 96	~~17,979~~ 124,007	~~18,051~~ 124,103	~~0.40~~ 0.077%
~~Non-Critical~~ Suitable Habitat	~~4,374~~ 3,834	~~306,148~~ 486,084	~~310,522~~ 489,887	~~1.41~~ 0.783%
Total	~~4,446~~ 3,930	~~324,127~~ 610,091	~~328,573~~ 613,991	~~1.35~~ 0.640%

Notes:
~~[1] See PEA 2009. These are both temporary and permanent impacts.~~
[1] See SCE 2010; these are both temporary and permanent impacts
[2] For data source, see Figure 5-5

The contribution of the EITP and ISEGS combined to overall cumulative habitat loss would be long term and major due to permanent habitat removal and the geographic extent. These impact contributions could be reduced to less than significant with implementation of general avoidance mitigation measures. Mitigation measures would include

pre-construction surveys, biological monitoring during construction, and preventive measures such as fencing to protect wildlife from injury and entrapment within construction areas. If avoidance of impacts to wildlife and plants were not possible, those impacts would be mitigated by species-specific measures detailed in Section 3.4, "Biological Resources" of the EITP document, and in the ISEGS environmental documentation (CEC 2010a and BLM ~~2009~~ 2010). These measures would include consultation with USFWS, pre-construction surveys, biological monitoring, relocation activities (desert tortoise), limitations on construction activities and timing, and compensatory measures for loss of special-status species and suitable habitat. Even after mitigation, cumulative impacts on desert tortoise and special-status plants could be major and considerable. Therefore, with the exception of desert tortoise and special-status plants, the contribution of the EITP in conjunction with ISEGS to cumulative impacts on habitat and wildlife species would be reduced to minor.

5.3.4 Cultural Resources and Native American Values

5.3.4.1 Geographic Extent and Timeframe

The proposed project could result in impacts to cultural resources by removing, disturbing, or causing damage to a cultural resource or group of resources present within the project area. The integrity of the regional resource base and the significance of a given cultural resource or group of resources are considered when determining the significance of impacts to that resource. Because the number of cultural resources is finite, limited, and non-renewable, assessment of cumulative impacts must consider resources that would be impacted by the project, the extent to which those impacts would degrade the integrity of the regional resource base, and impacts other projects might have on the regional resource base. These effects, taken together, are "considerable" if they result in degradation of the resources base. Therefore, the geographic extent of cumulative impacts for the proposed project's cultural resources analysis comprises not only the areas within the ROW where ground disturbing activities would occur, but also the Eldorado Valley, McCullough Mountains, New York Mountains, Jean Valley, the Ivanpah Valley, Clark Mountains, and other adjacent areas. The proposed project's impacts would occur during construction; however, their contribution to cumulative impacts would occur over the lifetime of the project. Therefore, the timeframe of cumulative impact analysis is the lifetime of the proposed project.

The proposed project would require the removal and destruction of the historic Boulder Dam-San Bernardino Transmission Line (36-10315 [CA-SBR-10315H]/53-8280). Extant portions of the (36-10315 [CA-SBR-10315H]/53-8280 run between San Bernardino and Clark Counties; however, because this is a linear resource that exists outside the geographic scope described above, the geographic scope for the cumulative impacts analysis for this specific resource comprises the entire ROW of the transmission line from Victorville to the Hoover Dam. Cumulative impacts to this resource could occur if any of the cumulative projects would also result in degradation of the resource. ~~Because this is a linear resource that exists outside the geographic scope described above, geographic scope for the cumulative impacts analysis for this specific resource comprises the entire ROW of the transmission line from Victorville to Hoover Dam.~~

5.3.4.2 Past and Present Project Impacts/Existing Cumulative Conditions

Section 3.5.1.1, "Environmental Setting," provides an inventory of cultural resources within the vicinity of the EITP and its alternatives. The survey of the EITP proposed route resulted in the discovery or re-recording of cultural resources along the proposed transmission route, telecommunications route, and alternative routes~~.~~. No previously recorded resources were located during the background search and no newly discovered resources were identifies during the field survey of the Ivanpah Substation site. For the cumulative analysis, the geology of the area within the geographic extent described above includes areas with alluvial deposits dating to the Holocene, which have the potential to contain buried cultural resources.

The condition of known cultural resources varies and reflects the natural and anthropogenic effects that can alter the integrity of any resource or group of resources. In the cumulative impact area, sun exposure, wind, erosion, and sedimentation are the natural factors affecting the integrity of cultural resources; however, human activities can

exacerbate these effects and have resulted in the most apparent cultural resources impacts in the cumulative impacts area. In some cases, these effects have damaged or destroyed the most significant qualities of the resource. Road construction, for example, can destabilize slopes and increase erosion of archaeological sites. One previously recorded historic site (36-10873) in the EITP ROW is located within the I-15 median and is not considered eligible for listing in the NRHP because it has been damaged, likely by road construction and maintenance (Chambers 2009). Desirable recreational sites could coincide with the locations of cultural resources. Land sailing activities that occur at Ivanpah Dry Lake may come into contact with cultural resources on the dry lake bed, resulting in damage or ~~alternation~~ alteration of sites or isolated finds. Recreational OHV activities are popular in the Ivanpah Valley—such as take place at the Jean/Roach Dry Lake SRMA—and also contribute to damage and destruction of cultural resources. Other human activities that impact cultural resources include agricultural practices that disturb sediments that contain sites and commercial and community expansion that results in the loss or destruction of resources. Many of the cultural resources in the cumulative impact area have been affected to some extent by one or a combination of these factors.

5.3.4.3 Reasonably Foreseeable Future Projects

Reasonably foreseeable future projects in the cumulative impact area could result in direct and indirect impacts to cultural resources that could contribute to cumulative resources. Impacts to cultural resources due to the combined effects of the proposed project and past, present, and reasonably foreseeable projects do not depend on the timing of construction or operation. Therefore, all reasonably foreseeable future projects within the cumulative impact area for cultural resources are considered.

Proposed projects in the EITP cumulative impact area that have evaluated and published information regarding their potential to impact cultural resources include the DesertXpress and the ISEGS projects. The ISEGS project would contribute to impacts on CA-SBR-10315H; these effects would be cumulative rather than direct or indirect. BrightSource would be required by the BLM and the CEC mitigate impacts of ISEGS on significant cultural resources including CA-SBR-10315H as part of the Conditions of Certification, should the project be permitted This mitigation includes evaluation and documentation of any potentially significant cultural resources as listed in Section 3.5.5.4.

For the segments of the DesertXpress project that would cross the Eldorado and Ivanpah Valleys, 34 eligible or listed cultural resource sites would be located within the project area that could be directly or indirectly impacted by the project. Construction of the DesertXpress project would include ground-disturbing activities that could result in impacts on these known resources as well as on unknown archaeological resources within the project's cumulative impact area; to reduce potential impacts on archaeological resources, DesertXpress would be required to implement four strategies: 1) avoidance; 2) evaluation and data recovery or other mitigation through archaeological investigation; 3) monitoring during construction, and 4.) vibration monitoring for historic structures. A description of all mitigation measures applicable to cultural resources for the DesertXpress is included in the Draft EIS for the project (USDOT FRA 2009).

Other proposed projects in the cumulative impact area that could potentially impact cultural resources include the reasonably foreseeable future projects listed on Tables 5-1 and 5-2 The cultural resource studies for these projects have not been made public; however, it is likely that these projects would be required to adopt mitigation measures similar to those described above, including avoidance, evaluation and data recovery for cultural resources that cannot be avoided, and monitoring during construction.

5.3.4.4 Cumulative Impact Analysis

The potential for cultural resources impacts from the proposed project to combine with the effects of past, present, and reasonably foreseeable projects within the cumulative impact area is described below.

Known Cultural Resources

The relevant impact of the proposed project is IMPACT CR-1: Impacts to Cultural Resources 36-10315 (CA-SBR-10315H)/53-8280 (Boulder Dam to San Bernardino 132-kV Transmission Line), ~~and 36-7694 (CA-SBR-7694H)/26CK4957 (LADWP Boulder Transmission Line)~~. Nine other potentially significant cultural resources were recorded within the EITP's cumulative impact area, but the EITP would not impact these resources or these resources were determined to be ineligible to be listed as described in Section 3.5.3.5. A cumulative impact could occur if one or more of the projects on the cumulative project list would damage the same resource as the EITP or if one or more of the projects on the cumulative project list, together with the EITP, would degrade the integrity of the regional resources base by damaging a known cultural resource.

Proposed projects in the EITP cumulative impact area that have evaluated and published information regarding their potential to impact cultural resources include the DesertXpress and the ISEGS projects. As stated in Section 3.5.5.3, one cultural resource on the ISEGS project site, CA-SBR-10315H (the Boulder Dam to San Bernardino Transmission Line), has been determined eligible for the NRHP, and is listed on the CRHR, and the potential effects of the project on the resource would be cumulative rather than direct or indirect. Analysis of the impact determined that the ISEGS project would be responsible for partial (approximately 21%) destruction of the resource, but these impacts would be mitigated through evaluation and documentation of the resource. As discussed above, impacts to known cultural resources from the DesertXpress project would be mitigated through avoidance, documentation and evaluation, and monitoring, including vibration monitoring. To minimize impacts to historic architectural structures, such as the Boulder Dam-San Bernardino Transmission line, DesertXpress would be required to comply with MM CR-2: Data Evaluation and Recovery/Other Measures, which requires HAER documentation for any historic structures that would be impacted by the project (USDOT FRA 2009).

The impact analysis for known cultural resources for the EITP concluded that there would be a potential to disturb, destroy or remove the eleven known cultural resources within the transmission line ROW and telecommunications line route through ground disturbance during construction. However, the analysis concluded that nine of the eleven cultural resources either would not be impacted through use of the APMs listed in Section 3.5.3.4 or were not considered eligible for listing on the NRHP. Construction of the EITP would result in a direct, adverse, and permanent impact to Cultural Resources 36-10315 (CA-SBR-10315H) ~~and 36-7694 (CA-SBR-7694H)/26CK4957~~ by altering the setting and disturbing elements of the site that contribute to its historic significance. The construction plans call for removal of portions of these historic resources. These impacts would be mitigated through sufficient HABS/HAER documentation of the known cultural resource, as approved by the appropriate regulatory body.

Construction of the DesertXpress and ISEGS projects would also result damage to, removal of, or destruction of segments of the Boulder Dam–San Bernardino 132-kV Transmission Line (36-10315 [CA-SBR-10315H]), similar to the impact of the EITP on this cultural resource. Therefore, the construction of these three projects could result in a cumulatively considerable impact to this cultural resource. The proposed project's contribution to cumulative impacts would be mitigated through adequate documentation. If adequate measures and mitigations were implemented by all the foreseeable construction projects that could affect other known cultural resources, then there would not be cumulatively considerable impacts to known cultural resources.

Previously Unidentified Cultural Resources and Human Remains

This section discusses the combined effects on previously unidentified cultural resources and human remains that could result from the proposed project and past, present, and reasonably foreseeable projects. The relevant impacts of the proposed project are IMPACT CR-2: Impacts to Previously Unidentified Cultural Resources and IMPACT CR-3: Unanticipated Discovery of Human Remains. For the reasons discussed below, cumulative impacts to unidentified cultural resources and human remains were not found to be significant or cumulatively considerable assuming proper mitigation for all projects.

Given the nature of the sediments and the historical activities in the area, cultural resources may be buried in the cumulative impact area. Therefore, subsurface unknown cultural resources could be unearthed by any ground

disturbing activity for all reasonably foreseeable future projects. Additionally, many of the cumulative projects that have not published any results of cultural resource field surveys or record searches; additional cultural resources may be identified as a result of pending surveys for these sites. To estimate the potential number of cultural resources in the cumulative impact area, a records search was conducted for the EITP that provided information about the distribution of previously recorded cultural resources within a one-mile buffer of the project routes. The results of this search allow for an order of magnitude estimate of 100 to 200 cultural resources in the cumulative impact area (~~PEA~~ SCE 2009). This is a conservative estimate based on 43 reasonably foreseeable future projects that would impact over 290,000 acres (this number does not include the disturbance of linear projects). Since the order of magnitude estimate was calculated, a number of these projects have withdrawn their application; the cumulative projects listed in Tables 5-1 and 5-2 reflect this decrease and include 14 reasonably foreseeable future projects that would impact approximately 100,000 acres. Therefore, the number of cultural resources in the cumulative impact area would likely be less than the order of magnitude estimate of 100 to 200. Regardless, it is reasonable to assume that additional cultural resources are located in the cumulative impact area that are currently unknown due to the publication of survey results for many of the cumulative projects.

Ground disturbing activities associated with the construction of the reasonably foreseeable future project could result in impacts to these resources by demolishing, destroying, or altering the resource and its immediate surroundings in a way that ~~dimishes~~ diminishes its integrity and impairs its ability to be considered for listing in the ~~NRUP~~ NRHP or the CRHR. Effects on unique archaeological resources, as defined under California Public Resources Code 21083.2(g), would also be considered significant if the impact would diminish information contained in the sites. For the two cumulative projects that have published information on cultural resource impacts, ISEGS would be required mitigate potential impacts to unknown cultural resources through use of monitors, preparation of a Cultural Resources Monitoring and Mitigation Plan, and other measures as outlined in Section 3.5.5.5. As discussed above, DesertXpress would be required to implement four strategies: 1) avoidance; 2) evaluation and data recovery or other mitigation through archaeological investigation; 3) monitoring during construction, and 4.) vibration monitoring for historic structures to reduce impacts to unknown cultural resources.

Because the reasonably foreseeable future projects would also be evaluated for their potential impacts to cultural resources under CEQA or NEPA, as applicable, it is reasonable to assume that these projects would be required to reduced potentially significant impacts by mitigation measures similar to those described above for the ISEGS and DesertXpress projects. All reasonably foreseeable future projects would be subject to Section 106 regulations (36 CFR 800). If adequate measures and mitigations are implemented by all the foreseeable construction projects, then there would not be considerable cumulative impacts to known cultural resources.

As discussed above, the sediments within the proposed project area have the potential to contain buried and therefore previously unidentified cultural resources. Such an unanticipated cultural resource could be impacted by ground disturbing activities associated with construction of the EITP, as the disturbance could diminish the scientific or cultural integrity of the resource. The applicant would reduce such impacts through APMs CR-5 and CR-6, and implementation of MM CR-1 would further reduce potential impacts to minor levels. As discussed above, it would be expected that the reasonably foreseeable future projects would adopt similar measures or be required to implement similar mitigation measures; therefore, there would be no cumulative impact to unknown cultural resources.

Additionally, the reasonably foreseeable future project and the EITP could result in impacts on human remains if there were unanticipated discoveries of human remains during construction. For the EITP, SCE would reduce impacts on human remains by following the steps outlined in APM CR-6. It would be expected that the reasonably foreseeable future projects would be required to implement similar mitigation measures in compliance with applicable regulations; therefore, there would be no cumulative impact due to the unanticipated discovery of human remains.

5.3.4.5 Alternatives

Because no activity is associated with the No Action Alternative, it would not contribute to adverse cumulative impacts to cultural resources.

Alternative Transmission Route C would result in the same adverse permanent impacts to Boulder Dam–San Bernardino 132-kV Transmission Line as the proposed project. APM CR-1, CR-2, CR-3b, and CR-4b would reduce the impact. Impacts to this resource would be mitigated through sufficient HABS/HAER documentation.

No previously recorded cultural resources were located during the pre-field research, and no new cultural resources were found during the field survey of Alternative Transmission Routes A, B, and D, Subalternative E, Telecommunications Alternative (Golf Course), and Telecommunication Alternative (Mountain Pass). Due to the lack of known resources and the likely measures to be implemented, there would be no cumulatively considerable impact to previously identified cultural resources.

Alternative Transmission Routes A, B, C, and D; Subalternative E; and the Telecommunication Alternatives would require excavation of sediments that have the potential for buried previously unidentified cultural resources or human remains. Similar to measures implemented for the proposed project, mitigation measures MM CR-1, APM CR-5, and APM CR-6 would be implemented for these alternatives. If such measures would be implemented by all foreseeable projects constructing in sediments, then there would not be cumulatively considerable impacts to previously unidentified cultural resources and human remains.

5.3.4.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP project and the ISEGS. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the CEC Final Decision and BLM FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~According to the ISEGS FSA/DEIS, ISEGS would make a significant contribution to the combined cumulative impacts of several foreseeable projects on the Boulder Dam–San Bernardino 132-kV Transmission Line.~~

According to the CEC Final Decision and BLM FEIS, ISEGS would make a significant contribution to the combined cumulative impacts of several foreseeable projects on the Boulder Dam–San Bernardino 132-kV Transmission Line (BLM 2010 and CEC 2010a).

However, impacts of the ISEGS project would not have the potential to combine with impacts of past, present, and reasonably foreseeable projects to result in a significant contribution to *local* cumulative impacts to other known or unknown resources; however, there could be regional cumulative impacts (CEC 2010a ~~and BLM 2009~~). BLM concludes that the construction of other projects in the same vicinity as the proposed project could affect unknown cultural resources of the same type as ISEGS could affect. However, other project proponents could avoid causing substantial adverse effects through mitigation, so that the potential contribution of ISEGS to cumulative impacts on these resources would be negligible (BLM 2010).

Cumulative Analysis of the Whole of the Action

Construction of the proposed project and ISEGS, the whole of the action, would contribute to cumulative adverse impacts to the Boulder Dam–San Bernardino 132-kV Transmission Line that have been previously described; however, impacts would be mitigated through sufficient HABS/HAER documentation of the resource.

Because these projects would be constructed in similar sediments and alluvium, they both have the potential to disturb buried cultural resources or human remains. Each project has measures to mitigate the potential adverse impacts. Construction of the foreseeable projects in this area would likely require implementation of similar mitigation

measures or would require clearance before construction occurred. Therefore, there would not be cumulatively considerable impacts to the disturbance of undiscovered cultural resources or human remains in the area.

5.3.5 Geology, Soils, Minerals, and Paleontology

5.3.5.1 Geographic and Temporal Extent

The geographic scope for considering cumulative impacts on geology, soils, minerals, and paleontology is the proposed EITP ROW, alternatives, and Ivanpah Substation site. Impacts on these resources would be limited to those that would be affected by project construction. The timeframe for the cumulative analysis is the operational lifetime, because the EITP could have impacts (on soils, in particular) for as long as it is present. However, most impacts would occur during construction.

5.3.5.2 Past and Present Project Impacts / Existing Cumulative Conditions

The project area is in the Mojave Desert, an area with a low potential for seismic activity and geologic hazards. There is no history of seismic activity in the Ivanpah or Eldorado valleys, and there are only two active faults in the region, the Black Hills Fault and the Stateline Fault System (SFS). The town of Primm lies near the SFS.

Most of the soils in the proposed project area are sand and gravel, which is typical of Ivanpah and Eldorado valley soils. There are no active mining operations along the proposed project corridor.

The actual number and type of paleontological resources that might be adversely affected by the cumulative projects is unknowable without a comprehensive inventory of the area defined for the analysis. Development of such an inventory is beyond the reasonable scope of this analysis. Typically, cultural and paleontological resources are identified as part of the permitting process for individual undertakings, and often are discovered only during ground-disturbing activities. Applicable laws and regulations, as discussed in Section 3.7.3, afford specific protections to discovered resources.

5.3.5.3 Reasonably Foreseeable Future Projects

Reasonably foreseeable future projects in the cumulative impact area for geology, soils, minerals, and paleontological resources include ISEGS, First Solar, ~~NextLight~~ Silver State, SNSA, Bull Frog Solar, Cogentrix, Power Partners Solar, DesertXpress, TransWest Express Transmission Project, and the Calnev Pipeline Expansion. For the complete listing of relevant cumulative projects in the Ivanpah and Eldorado valleys see Tables 5-1 and 5-2.

Cumulative geologic impacts could occur where future or existing projects cross or would be located adjacent to the proposed project (or vice-versa). The proposed project would cross several proposed solar projects (ISEGS, First Solar Development, and NextLight ~~Renewable Power~~ Silver State Solar) and would be close, at certain locations, to the existing Calnev pipelines, the proposed Calnev Pipeline Expansion project, and the proposed DesertXpress High-Speed Rail project. Consequently, reasonably foreseeable future projects that could contribute to cumulative impacts related to geologic impacts are limited to parallel and crossing transmission lines, crossing passenger rail lines, and local commercial developments.

Impacts on geology, soils, and minerals, including accelerated erosion, slope failures, and loss of mineral resources, from future foreseeable projects could occur and could contribute to cumulative impacts on these resources during both construction and operation phases; therefore, the temporal context for the cumulative impact analysis for these resources includes the life of the cumulative projects, beginning with construction.

For paleontological resources, impacts typically occur during ground-disturbing activities associated with construction; therefore, the temporal context for the cumulative impact analysis for paleontological resources is limited to overlapping construction phases.

5.3.5.4 Cumulative Impact Analysis

The potential for impacts on geology, soils, minerals, and paleontological resources from the proposed project to combine with the effects of other projects within the cumulative impact area and timeframe is described below. The impact analysis in Section 3.6, "Geology, Soils, Minerals, and Paleontology," concluded that construction and operation of the proposed project in compliance with existing regulations, standard operating procedures, APMs, and mitigation measures would reduce potential impacts on those resources to negligible or less than significant.

While projects could affect resources, resources could also affect projects. Examples are seismic impacts (groundshaking, earthquake-induced ground failure, and fault rupture) from the numerous local and regional faults and impacts from unstable soils. For this cumulative impact area, geologic resources' impacts on projects would not be cumulatively considerable.

Geology and Geologic Hazards

This section discusses the combined effects related to geology and geologic hazards of the proposed project and past, present, and reasonably foreseeable projects. The relevant impacts of the proposed project are IMPACT GEO-1: Rupture of Earthquake Fault Across the Transmission Line Route, IMPACT GEO-2: Exposure of People or Structures to Potential Adverse Effects due to Seismic Ground Shaking, IMPACT GEO-3: Exposure of People or Structures to Potential Adverse Effects due to Seismic-Related Ground Failure, and IMPACT GEO-4: Expose People or Structures to Adverse Effects due to Landslides.

The project would cross the SFS on the California side just before the California/Nevada border south of Primm, Nevada. The Calnev Pipeline and the proposed DesertXpress High-Speed Rail Project also cross the SFS at a similar location. Buildings in Primm at the outlet mall and stretches of I-15 immediately south of the California-Nevada state line would be close to EITP structures and would be exposed to the same geologic hazards if they occurred. Movement along the SFS could cause earthquakes, resulting in damage to existing structures. However, as noted above, seismic impacts (groundshaking, earthquake-induced ground failure, and fault rupture) from the numerous local and regional faults would be impacts from the geologic environment on individual future or existing projects and would not introduce considerable cumulative impacts.

Further, there are no highly sensitive geologic formations in the project area. Therefore, the proposed project does not contribute to cumulative impacts to geologic resources. From the available information, no reasonably foreseeable future projects indicate plans to significantly alter sensitive geologic formations. However, the available information is limited.

Construction of ISEGS, First Solar, ~~NextLight,~~ Silver State Solar, SNSA, Bull Frog Solar, Power Partners Solar, Cogentrix Solar, DesertXpress High-Speed Rail, and the Calnev Pipeline Expansion would disturb the ground surface; however, each project would be required to protect existing surface materials and topsoil by complying with regulations and implementing project-specific Stormwater Pollution Prevention Plans (SWPPPs) and grading permits. For discussion of disturbance to the dry lakes, see Section 5.3, "Hydrology and Water Resources."

Due to the active geologic environment of the region, reasonably foreseeable future projects would likely be required to prepare a geotechnical report. Applicants for the proposed project, ISEGS, and the ~~Joint Point of Entry~~ Joint Port of Entry project in the cumulative impacts area intend to complete geotechnical testing to ensure sound foundations for transmission line towers, solar heliostats, and other project components. A temporary use permit for geotechnical testing and soil sampling is in process for the ~~Joint Point of Entry~~ Joint Port of Entry project located 2.5 miles south-southeast of the proposed project. The impact from the geotechnical testing on geologic resources would be negligible or less than significant. Therefore, there would not be a considerable cumulative impact to geologic resources from the testing.

Soils

This section discusses the combined impacts on soils of the proposed project and past, present, and reasonably foreseeable projects. The relevant impacts of the proposed project are IMPACT GEO-6: Structural Failure of Towers and Substation Facility due to Unstable Soil Conditions Resulting in Subsidence or Collapse and IMPACT GEO-7: Structural Failure of Towers or Substation Facility due to Expansive Soils.

Similar to seismic impacts, structural impacts from unstable soils are an impact of the geologic environment on individual projects and would not introduce considerable cumulative impacts.

Only during the construction phase could the proposed project result in release of chemicals or pollutants that would contaminate soil, so it would be only during construction when any such release could be combined with the release of pollutants by other sources in the cumulative impacts area. This potential cumulative impact is discussed in Section 5.6, "Health, Safety, and Hazards."

For an estimate of cumulative impacts to lands and biological habitat, and related disturbance to soil, see Section 5.10, "Land Use, Agricultural Resources, and Special Management Areas," and Section 5.5, "Biological Resources."

Minerals

This section discusses the combined effects on minerals of the proposed project and past, present, and reasonably foreseeable projects. The relevant impact of the proposed project is IMPACT MR-1: Loss of Mineral Resource of Value to Region and the Residents of the State.

None of the reasonably foreseeable future projects in the cumulative impacts area are expected to interfere with active mining operations. The Molycorp Mine is located near Mountain Pass and approximately 5 miles south-southwest of the proposed Ivanpah Substation. This open pit mine is expected to continue operations until mid-2020. The routes for the Calnev Pipeline Expansion and the DesertXpress High-Speed Rail pass between Mountain Pass and the Molycorp Mine to the north of Highway 10. The EITP's Mountain Pass Telecommunications Alternative would pass through the Molycorp Mine, resulting in minor, short-term, adverse impacts from interrupting mining operations.

Most of the multiple mining claims registered with the BLM in the region (Figure 3.6-3) are inactive. Available information on cumulative projects does not indicate any interference with active mining operations. Therefore, there is no considerable cumulative impact to mining claims.

The proposed project would not require extraction of minerals or prevent access to any active mining operations. The project would be on land designated as an energy corridor. The land is not eligible for mining, and the project would not limit any existing mining claims. Therefore, incremental impact of the proposed project on any cumulative impacts on minerals would be negligible or less than significant.

Paleontological Resources

This section discusses the combined effects on paleontological resources of the proposed project and past, present, and reasonably foreseeable projects. The relevant impact of the proposed project is IMPACT PALEO-1: Directly or Indirectly Damage or Destroy Paleontological Resources.

ISEGS, First Solar, Calnev Pipeline Expansion, DesertXpress High-Speed Rail, Cogentrix Solar Services, and SNSA are reasonably foreseeable future projects that are close to the dry lakes. The dry lakes are on either side of I-15 to the north and south of Primm, Nevada, as shown in Figure 5-1. Dry lakes are the only locations in the cumulative impacts area known to have sensitivity for paleontological resources. Construction of projects could impact paleontological resources in the dry lakes, since ground-disturbing activities would be necessary during construction. The combined impacts from the proposed project and reasonably foreseeable future projects in the cumulative impact area on paleontological resources may be significant. APMs for the proposed project impacts, consisting of monitoring, field

surveys, and data recovery, would reduce impacts to less than significant. If the other proposed projects also implement similar measures following NEPA regulations (United States Code, Section 4321 et seq.; 40 CFR 1502.25) and Appendix G of the CEQA guidelines (Section (V) (c)), potential cumulative impacts on paleontological resources associated with the proposed project, in conjunction with other proposed projects in the cumulative impact area, would be negligible or less than significant.

Paleontological resources are similar to cultural resources in that impacts are limited to specific undiscovered sites or fossils that could be discovered and potentially impacted through ground-disturbing activities. Therefore, the cumulative scope for paleontological resources would be the same as for cultural resources (see Section 5.6, "Cultural Resources"). Unknown, unrecorded paleontological resources may be found at nearly any development site. As they are discovered, sites are recorded and information is retrieved. If the nature of the resource requires it, the resource is protected. When discovered, paleontological resources are treated in accordance with applicable federal and state laws and regulations as well as the mitigation measures and permit requirements applicable to a project.

As discussed before, paleontological resources are known to be present in the cumulative impact area, particularly for those projects that would be located near the dry lakes, such as ISEGS, First Solar, ~~NextLight~~ Silver State Solar, the DesertXpress High-Speed Rail, Cogentrix Solar Services, and the Calnev Pipeline Expansion. If resources were discovered during construction of these projects, they would be subject to legal requirements designed to protect them, thereby reducing impacts. Therefore, proposed project impacts combined with impacts from past, present, and reasonably foreseeable projects would not be significant and no additional mitigation measures would be necessary.

5.3.5.5 Alternatives

The No Project Alternative involves no activity; therefore, under this alternative, there would be no impacts on geology, soils, minerals, or paleontological resources, nor would there be a contribution to cumulative impacts.

The alternative transmission routes and the telecommunication alternatives merely vary the route of the proposed project; the same components would be built. The impact on geology, soils, minerals, or paleontological resources for all the alternatives would be similar to the impacts of the proposed project, with the exception of the Mountain Pass Telecommunications Alternative. This alternative would pass through the Molycorp Mine, resulting in minor, short-term, adverse impacts from interruptions in mining operations. Overall, the alternatives would all have approximately the same contribution to cumulative impacts.

5.3.5.6 Whole of the Action / Cumulative Action

~~This section analyzes the potential cumulative effects of the EITP and the ISEGS project combined. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and the BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

The potential for significant adverse cumulative impacts to ISEGS from geologic hazards during its design life and to potential geologic, mineralogic, and paleontological resources from the construction, operation, and closure of the ISEGS project is not significant with respect to CEQA or NEPA. Most cumulative impacts related to geology and paleontology only have the potential to occur within boundaries of the ISEGS project site itself because geologic materials occur at specific locales and are only affected by activities acting on them directly. Geologic impacts from the ISEGS project would be site-specific and would therefore not have the potential to combine with impacts from other projects.

According to the CEC and BLM FSA/DEIS and the BLM FEIS, groundwater pumping associated with ISEGS would not contribute to subsidence in the Ivanpah Valley. When combined with impacts of past, present, and reasonably foreseeable projects, ISEGS would not contribute to adverse cumulative impacts (CEC 2010a and BLM 2010).

The ISEGS project site is currently not used for mineral production, nor is it under claim, lease, or permit for the production of locatable, leasable, or salable minerals. Sand and gravel resources are present at the site; however, such materials are present throughout the region, and ISEGS construction or other reasonably foreseeable projects (except the EITP) would eliminate potential for mineral extraction from as much as 43,000 acres. ~~the ISEGS would not have a significant impact on their availability. In addition, these resources would become available again following decommissioning of the project.~~ The effects to the mining industry would likely be minimal due to the mining opportunities in the southern Nevada region. As a result, the ISEGS project would not have any cumulative impacts on the development of geologic or mineral resources (BLM 2010).

The construction and operation of other projects within the vicinity of ISEGS could result in increased stormwater and sediment transport impacts. However, all of these projects would be designed to avoid, manage, and mitigate potential stormwater and sediment impacts. Likewise, the ISEGS project has been designed to be in compliance with existing laws, ordinances, regulations, and standards and would use a stormwater and sediment pass-through design that would result in only a minor increase of sediment downgradient of the proposed project. Therefore, the construction and operation of the proposed ISEGS project would not impact water resources from erosion, stormwater, or sediment aggradation or degradation (CEC and BLM 2009, CEC 2010, and BLM 2010).

No paleontological resources have been documented on the ISEGS project site or at the proposed laydown area. However, based on the geology of the site and because paleontological resources have been discovered on sites within 2 miles of the ISEGS project, the probability of encountering paleontological resources is high on portions of the project site, and also during construction of other projects in the Ivanpah Valley. The project would include conditions of certification that would require a worker education program in conjunction with monitoring of earthwork activities by qualified professional paleontologists. The certification conditions would require that earthwork be halted any time potential fossils were recognized by either a paleontologist or workers. When properly implemented, the conditions of certification yield a net gain to the science of paleontology, since fossils that would not otherwise have been discovered can be collected, identified, studied, and properly curated. It is reasonable to assume that the reasonably foreseeable projects would include similar measures. Therefore, ISEGS would not contribute to any considerable cumulative impacts to paleontological resources (CEC and BLM 2009 and BLM 2010).

Cumulative Analysis of the Whole of the Action / Cumulative Action

The ISEGS project and the proposed EITP would have negligible or less than significant impacts on geology (including geologic hazards), soils, minerals, and paleontological resources in the Ivanpah Valley; therefore, the Whole of the Action / Cumulative Action of EITP and ISEGS would not contribute to considerable or significant cumulative impacts on these resources.

5.3.6 Hazards, Health, and Safety

5.3.6.1 Geographic Extent and Timeframe

Impacts resulting from hazards and hazardous materials would be limited to the proposed project site and directly adjacent land because impacts would result only from incidents associated with hazardous materials during construction or maintenance activities. Therefore, the geographic extent for the analysis of cumulative impacts related to hazards, hazardous materials, and potential environmental contamination is limited to the immediate vicinity surrounding project substations, staging areas, laydown areas, and transmission and telecommunications line ROWs. These cumulative impacts could occur during construction and operation and would be limited to the areas of concurrent construction or maintenance. Although incidents could occur during maintenance activities, if cumulative

impacts were to occur, they would be more likely to occur during the 18-month construction period because greater volumes of hazardous materials and more equipment would be in use. Therefore, the timeframe for the cumulative impact analysis with respect to hazardous materials will be the construction period.

The geographic extent of the cumulative impacts analysis with respect to fire hazards is limited to the Ivanpah and Eldorado valleys because all construction and operation activities associated with the proposed project and any proposed alternatives would take place within the EITP ROW in the County of San Bernardino, California, and Clark County, Nevada. The timeframe for this cumulative impacts analysis with respect to fire hazards is also the construction period for two reasons: 1) The construction period is the more likely time for a fire hazard because there is more activity, and 2) the proposed project is replacing an existing transmission line. Therefore, the presence of the new transmission line would have the same cumulative contribution to fire hazards as the existing transmission line.

5.3.6.2 Past and Present Project Impacts/Existing Cumulative Conditions

In California, the area along the route of the proposed project alignment consists of undeveloped land, open space, and scattered rural residences.

Hazardous Materials and Wastes

Past and present projects that have had an impact on the Ivanpah Valley in California with respect to hazardous materials and wastes include the Molycorp Mine and its Evaporation Pond and Wastewater Pipeline; CalNev Pipeline; and the flyash land disposal site located near the Primm Valley Golf Course. Although the Colosseum Mine could have residual contamination, it is too far from the construction corridor of the proposed project to have the potential to contribute to cumulative impacts. Biogen operated a coal power plant near the present location of the Primm Valley Golf Course. A by-product of coal-fired power plants is fly ash. Biogen disposed of the fly ash in an on-site landfill which is in the vicinity of the Primm Valley Golf Course; however, the Biogen facility was closed in the early 1990s (Cass 2010). The past and present impacts of the other cumulative projects listed above are described below.

The Molycorp Mine was originally opened in the early 1950s near the town of Mountain Pass, California, and is an active lanthanide mining and milling operation. According to the Toxic Release Inventory Database, the Molycorp Mine emits air quality contaminates, but there are no surface water discharges and no underground injection. Lead compounds are shipped off-site for disposal (U.S. EPA 2010). The Molycorp Mine has a history of contamination. Under a 1994 settlement, Molycorp agreed to close the drum yard and the concrete casting and staging areas at the Mountain Pass Facility in order to remove all drummed wastes and close all lead waste impacted areas. By the end of 2003, DTSC's Geology, Permitting, and Corrective Action Branch accepted the closure certification of these units and released Molycorp from closure financial responsibility (DTSC 2010). According to Envirostor, the Molycorp Mountain Pass Facility currently has a non-operating hazardous waste facility (DTSC 2010). There is also groundwater contamination associated with the on-site evaporation pond (Cass 2010).

The Mountain Pass Telecommunication Alternative follows the route of the Molycorp wastewater pipeline down the mountain, and both the Mountain Pass and Golf Course Telecommunication Alternatives follow its path along a portion of Nipton Road. The Molycorp Pipeline also has a history of contamination. Between 1984 and 1993, Molycorp reported over 40 spills from the pipeline, totaling 727,000 gallons. In 1996, there were at least 11 spills from pipeline ruptures, totaling in excess of 350,000 gallons. Some of the waste contained heavy metals and low levels of radioactivity, up to 100 times acceptable (background) levels. In 1997, the Lahontan RWQCB issued Cleanup and Abatement Order 6-97-66, and Molycorp completed the cleanup in 1998. More than half of the wastes were radioactive. In 1998, the Lahontan RWQCB issued orders requiring Molycorp to cease disposing of and clean up radioactive and hazardous waste in ponds on the playa and at the mill site and subsequently identified additional areas of the pipeline that required remediation and developed a plan for pipeline removal. Following a civil suit from county prosecutors for violating state drinking water safety laws, Molycorp temporarily suspended operations at the mine and mill in September 1998 until environmental reviews were complete and a solution to its wastewater issues was reached (EPA 2010). Much of the contamination along the pipeline has been removed (Cass 2010).

Contamination has also occurred at the evaporation pond sites. The wastewater pipeline discharged to two different sets evaporation ponds. From 1980 to 1987, wastewater was discharged to the Old Ivanpah Evaporation Ponds (OIEP) located approximately 10 miles east of the mine along Nipton Road. Operations at the OIEP were discontinued when it was discovered that the underlying groundwater was contaminated with total dissolved solids (TDS), nitrate, and strontium that appeared to be related to the ponds. In 1987, wastewater discharge was moved to the New Ivanpah Evaporation Ponds (NIEP), located approximately three miles north of the OIEP near the center of the Ivanpah Playa. The NIEP location was selected based on naturally poor groundwater quality (high saline and TDS) that exists beneath the dry lakebed. The wastewater discharged to the NIEP contained elevated TDS, primarily chloride and sodium with lower concentrations of strontium, nitrate, barium, lead, and radionuclides. The media of concern at the NIEP is surface soils and groundwater. The NIEP has not been formally closed. Groundwater monitoring for TDS, nitrates/nitrites, strontium, and lead is on-going around the NIEP (Arcadis 2009).

Currently, Chevron Corporation owns the wastewater discharge pipeline and the evaporation ponds. Molycorp Minerals LLC owns and operates the mine. Chevron is in the process of removing the pipeline and removing residual contamination associated with the pipeline. It is also monitoring the groundwater at the evaporation ponds. Molycorp Minerals LLC is currently operating the mine but is not mining. It is processing stockpiled materials (Hunter 2010).

~~The existing CalNev Pipeline Corridor transects the Ivanpah Valley. There are no known leaks or releases in this area from this underground pipeline system. However, contaminated soils may be present in the subsurface and could be found if the pipeline expansion occurs. The proposed project crosses this pipeline corridor less than 1 mile northeast of Primm (see Figure 5-6).~~

The existing CalNev Pipeline and Kern River Pipeline corridors transect the Ivanpah Valley. There are no known leaks or releases in this area from these underground pipeline systems. However, contaminated soils may be present in the subsurface and could be found if the pipeline expansion occurs. The proposed project crosses the CalNev Pipeline corridor less than 1 mile northeast of Primm, but does not cross the Kern River Pipeline corridor (see Figure 5-6).

Within Primm, Nevada, there are residential developments and commercial and industrial properties. Underground storage tanks (USTs) are present at the local gas stations. There could be contamination associated with these tanks, but if there is it would not contribute to any contamination found or cause by the project because the proposed project does not pass in close proximity to these USTs. The remainder of the route is primarily undeveloped open space. Within the undeveloped and open space land and residential areas there is little likelihood of significant soil or groundwater contamination, based on a lack of uses that would involve hazardous materials. Refer to Tables 3.7-1 and 3.7-2 for a list of the hazardous waste sites and permitted facilities UST sites and land disposal sites.

Fire Hazards

The area along I-15 in San Bernardino County is classified as a moderate fire zone (SB County Fire 2010). Primm has a low fire hazard with low ignition risks (Resource Concepts, Inc. 2005). The route to the Eldorado Substation would likely have a low fire hazard (see Section 3.7.1.8: Fire Hazards).

5.3.6.3 Reasonably Foreseeable Future Projects

Reasonably foreseeable future projects identified for this analysis include the ISEGS, FirstSolar, ~~NextLight~~ Silver State Solar, the CalNev Pipeline Expansion Project, and the DesertXpress High-Speed Rail Project because of the proposed project crosses or intersects each of these projects (see Figure 5-6), and there is the potential for overlapping construction schedules (Table 5-3). Construction of these projects would require the use of fuels and hazardous materials. They would also use equipment that could act as an ignition source.

The analysis considers the location of known significant soil or groundwater contamination. Sites with known environmental contamination would be legally required to be investigated and remediated in accordance with regulatory agency standards prior to redevelopment. Although localized areas of soil contamination could be encountered by some of these projects, most are new developments in open areas where there has been no historical industrial use. Areas with previously unknown contamination will likely be discovered during planning, followed by the required reporting and cleanup.

5.3.6.4 Cumulative Impact Analysis

The potential for hazards and hazardous materials impacts of the proposed project to combine with the effects of other projects within the cumulative impact area is described below. Regarding cumulative environmental contamination impacts, the proposed project's contribution to a cumulative impact would only be considered significant if it combined with other projects to result in substantial volumes of contaminated soil that required offsite treatment and that, as a combined volume, exceeded the capacity of available treatment facilities or resulted in substantial exposure of hazardous materials to the public. For the reasons discussed below, the proposed project would not contribute to considerable cumulative impacts.

Hazardous Materials, Spills, and Potential Exposures

This section discusses the combined effects on hazards and hazardous materials of the proposed project and past, present, and reasonably foreseeable future projects. The relevant impacts of the proposed project are IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials; IMPACT HAZ-2: Create Hazards through Accidental Release of Hazardous Materials into the Environment; and IMPACT HAZ-3: Expose the Public or Environment to Contaminated Soil or Groundwater. In addition, this section addresses the related NEPA criteria.

As discussed above, potential cumulative effects of hazardous materials spills and potential exposures could only occur in the immediate vicinity of the proposed project area. Construction and operational activities associated with the proposed project could result in releases of hazardous materials in localized areas of the transmission line, substations, or telecommunication lines. The applicant would implement programs and measures to reduce the potential for a spill and to address ones that occur. A hazardous materials and waste handling management program (APM HAZ-2) would contain emergency release response procedures. The applicant would also be required to implement a Stormwater Pollution Prevention Plan (SWPPP) during construction and a Spill Prevention, Control, and Countermeasure (SPCC) plan (APM HAZ-5) during operations at substations. Over the entire construction period, over 700,000 gallons of fuels would be used. Typically spills occur during refueling, which typically takes place at construction yards. The applicant would establish hazardous material transportation procedures as well as fueling and maintenance of construction equipment procedures (APM HAZ-2). The measures described above would reduce the potential for spills of hazardous materials and ensure cleanup measures would be implemented if a spill occurred.

The reasonably foreseeable future projects that would be crossed by the proposed project and could have concurrent construction schedules are ISEGS, First Solar, ~~NextLight,~~ Silver State Solar, DesertXpress and the CalNev Pipeline Expansion. The ISEGS project would implement measures that are similar to those in this project to remediate spills as described in Section 3.7.5. DesertXpress and Silver State Solar would implement a SWPPP and SPCC Plan to prevent and address spills. It is likely that the CalNev Pipeline Expansion~~,~~ and First Solar~~, and NextLight~~ would have similar measures to prevent and cleanup spills, but these projects have not completed their environmental review processes; therefore, the exact steps that they would undertake to prevent and cleanup spills is not known. However, they would be required to comply with state and federal laws and regulations. Therefore, it is unlikely that there would an incident where multiple projects would have a hazardous materials release in close proximity to each other such that could be cumulative effects. Any release of hazardous materials would have to be remediated according to state and federal regulations.

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LABEL	NAME	STATUS	Acreage*
1	Bighorn Electric Generating Station	Existing	86.9
2	Primm Casinos	Existing	127.8
3	Primm Valley Golf Course	Existing	531.3
4	Primm Outlet Mall	Existing	38.7
5	Ivanpah Dry Lake RA	Existing	12,855.3
8	Desert Oasis Apartments	Existing	13.5
10	AT&T FiberOptic Cable	Existing	NA**
13	Jean/Roach Dry Lake SRMA	Existing	224,931.4
14	SNSA	Pending	5,996.6
17	KFC/Taco Bell	Existing	3.6
18	Kern River Pipeline	Existing	NA**
20	I-15 Mountain Pass Truck Lane	Existing	NA**
21	Clark Mountain and Crescent Peak Allotment Lease	Existing	236,723.2
A	First Solar Development	Pending	5,433.4
B	SNSA Ivanpah Airport Environs Overlay	Pending	16,579.6
C	Desert Xpress	Pending	NA**
F	Temporary Batch Plant	Existing	32.4
K	Brightsource ISEGS	Pending	3,564.5
Q	Nextlight Renewable Power	Pending	2,967.0
S	CalNev Pipeline Expansion Project	Existing/Pending	NA**

* Cumulative project areas are approximated reflecting the project right-of-way and not necessarily the actual or final project boundary footprint.

** Linear projects not included when calculating overall disturbance acreages.

SOURCE: See source list for Table 5-1 and Table 5-2.

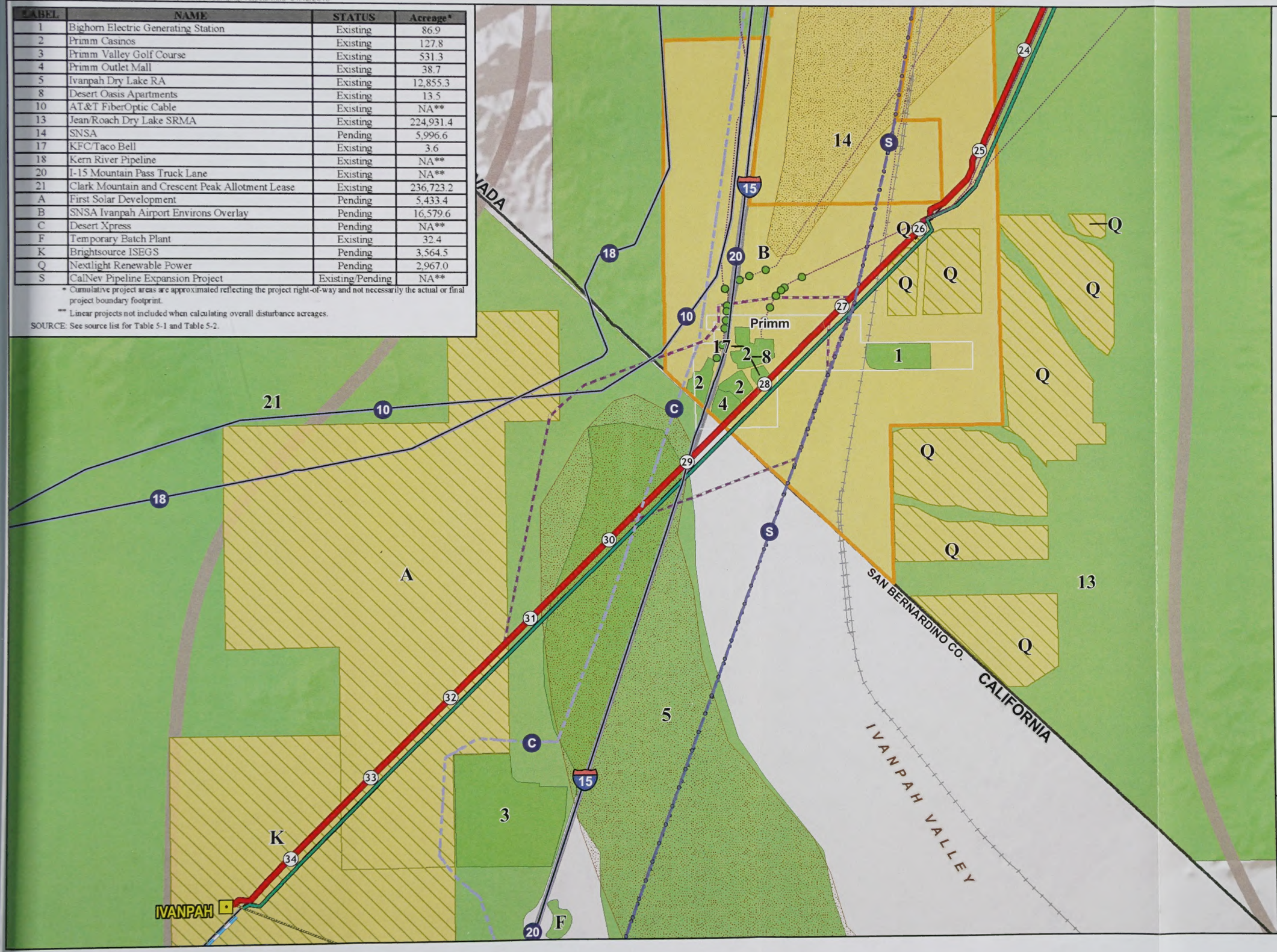

Figure 5-6
Eldorado-Ivanpah Transmission Project

Cumulative Projects near Primm, Nevada and the Primm Valley Golf Course

Cumulative Linear Project
- Existing
- Existing/Pending
- Pending

Cumulative Project Area by Type
- Solar
- Wind

Cumulative Project Area by Status
- Approved/Existing
- Pending
- Ivanpah Airport Environs Overlay

PROPOSED PROJECT
- Transmission Line
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Milepost
- Proposed Substation
- City
- Interstate
- Railroad
- Dry Lake Bed
- Valley Boundary

Desert Conservation Program
- Restoration and Weed Monitoring Location
- Restoration Surveys, Restored Trail and Weed Monitoring

N

0 0.5 1
Miles

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As discussed in Section 3.7: Hazards, Health and Safety, contaminated soils or water are unlikely to be encountered during construction of the proposed project. However, the applicant has committed to conducting a Phase I Environmental Site Assessment prior to construction to identify potential contamination in areas to be graded or excavated as part of the proposed project (APM HAZ-1). In case residual soil contamination were found along the proposed project route, the applicant would implement a Soil Management Plan (APM HAZ-3) to guide the characterization and cleanup of contaminated the soils according to applicable regulations. Encountering contaminated groundwater would be unlikely at any of the sites on the floors of the valleys because the depth to groundwater is over 500 feet below ground surface (bgs). Surface water bodies are ephemeral in the area, so surface water contamination would not likely be encountered.

Cumulative impacts could occur if multiple projects would be unearthing and exposing contamination in close proximity to each other. The proposed project would cross the construction corridor of DesertXpress and the CalNev Pipeline Expansion at discrete locations. The potential for concurrent construction is unlikely. DesertXpress has included mitigation measures to address the potential for unearthing contaminated soil. The CalNev Pipeline Expansion would involve the installation of a new 16-inch pipeline. Most of the construction would occur in their existing pipeline ROW. The existing CalNev pipelines transports fuel products. There is the possibility that the existing CalNev pipelines have leaked; therefore, when the pipeline ROW is unearthed, some soil could be contaminated with petroleum products. Due to this possibility, the CalNev proponent would likely also be required to have a plan to address the potential of unearthing contaminated soil. Although it is unlikely that the proposed project and these projects would be constructed in the same location at the same time, the Soil Management Plan (APM HAZ-3) that the proposed project would use and the mitigation measure that other projects would likely use would reduce the potential for exposing the public or wildlife to existing contamination to negligible levels.

The proposed project would cross within ~~one~~1 mile to several miles of the right-of-way for the ISEGS, FirstSolar, and ~~NextLight~~ Silver State solar projects. For these projects, there is the possibility of concurrent construction in close proximity. Like the proposed project, ISEGS has included mitigation measures to address the potential for unearthing contaminated soil. FirstSolar and ~~NextLight~~ Silver State are likely to include similar mitigation measures. Because any soil contamination encountered would be removed and/or remediated prior to construction, impacts of the proposed project would not combine with impacts of other projects, and there would not be a considerable cumulative effect.

Airport Risks

This section discusses the combined effects on airports of the proposed project and past, present, and reasonably foreseeable projects. The relevant impact of the proposed project is IMPACT HAZ-4: Increase Safety Hazards for People Residing or Working within 2 Miles of a Public Airport or Public Use Airport. The SNSA is currently on hold; however, the applicant has filed for a Hazard/No Hazard Determination with the FAA and would comply with all FAA recommendations upon construction of the SNSA. It is anticipated that lattice towers will have to have lighting to comply with FAA requirements. Any new project that represented an airport risk would either not be approved or would have to be modified or mitigated such that it would not represent an airport risk when it was constructed or operational. The ISEGS project would require five to ten foot tall day and nighttime strobe lighting on top of its 459 foot power towers under FAA regulations. At this time, it is not known whether there would be any of the other foreseeable projects that would have structures that would exceed the FAA 200-foot height limit and potentially conflict with the airport requirements. None of the currently proposed projects are known to have effects that are compatible with the operations of an airport. Because the proposed project would adhere to any FAA mandates, its contribution to potential future airport risks would be negligible.

~~The proposed 230-kV transmission line would be constructed within 0.5 miles of the southern boundary of the proposed SNSA that is scheduled for completion by 2020. However, the EIS for the SNSA is currently in progress and is not expected to be completed until the forth quarter of 2012. Therefore, it is not possible to conclusively state whether the EITP would impact the future SNSA until completion of its EIS and approval of that project. The 230-kV transmission line lattice steel towers would be 180 feet high. Per MM HAZ-2, the applicant would be required to~~

~~consult with the FAA to determine whether a Hazard/No Hazard Determination is required and whether the EITP's final design should incorporate measures to reduce obstructions to air navigation (such as lighting on tower structures).~~

~~Regardless of whether the FAA determines that a Hazard/No Hazard Determination is required for the EITP, if the SNSA is approved, the FAA would review any project that is proposed to be located within 20,000 feet of the airport before it could be approved for construction. Any new project that represented an airport risk would either not be approved or would have to be modified or mitigated such that it would not represent an airport risk when it was constructed or operational. The ISEGS project would require five to ten foot tall day and nighttime strobe lighting on top of its 459 foot power towers under FAA regulations. At this time, it is not known whether there would be any of the other foreseeable projects that would have structures that would exceed the FAA 200-foot height limit and potentially conflict with the airport requirements. One of the currently proposed projects could have effects that are not compatible with the operations of an airport. Based on knowledge of past wind projects and the proximity of the Table Mountain Wind Project, there could be radar interference issues with two SNSA radar facilities.~~

~~In order to further reduce potential hazards associated with SNSA, the applicant will implement MM HAZ-2. MM HAZ-2 requires that the applicant consult with the FAA regarding final project design and whether a Hazard/No Hazard Determination is required. Therefore, the proposed project's contribution to potential future airport risks would be negligible. At this time, it is not possible to assess the cumulative potential airport risks at the proposed SNSA because insufficient information is available about SNSA and the proposed projects that would be located within 20,000 feet of the SNSA.~~

Emergency and Evacuation Routes

This section discusses the combined effects on emergency and evacuation routes of the proposed project and past, present, and reasonably foreseeable projects. The relevant impact of the proposed project is IMPACT HAZ-5: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan.

I-15 is an emergency evacuation route. Traffic congestion on I-15 could delay response times for emergency vehicles that are servicing the area or could impede use of I-15 as an evacuation route. Section 3.14: Traffic and Transportation, describes in detail the impacts of congestion and lane closures. Temporary lane closures and increased traffic congestion might occur during construction of the proposed project and other foreseeable projects. The proposed transmission line would cross I-15 near MP 29 at the California/Nevada border. The DesertXpress is proposed to follow I-15 near the California-Nevada border in California and would be within the I-15 corridor in Nevada. The construction period for DesertXpress would be from 2010 to 2012, therefore, there could be overlap with the proposed project. The boundary of the proposed SNSA would be I-15; therefore, they could impacts to I-15; however the construction period would not overlap with the proposed project. If lane closures were necessary for construction or maintenance of the proposed project or the DesertXpress, the applicant or the proponent for DesertXpress would have to obtain an encroachment permit from the appropriate authorities (e.g., Caltrans or Nevada Department of Transportation) for work that would performed within roadway and railroad

ROWs (APM-TRA-1). Increased traffic congestion could occur from construction vehicles and worker's vehicles transiting to and from project sites. The applicant would implement a Traffic Management and Control Plan (APM TRA-2) that would specify how the flow of traffic would be controlled and how emergency situations would be addressed. Impacts related to ground transportation risks would be reduced by minimizing the use of local streets (APM TRA-3) and by implementing BMPs such as using flaggers, identifying detours, and communicating with stakeholders.

Concurrent construction of the proposed project and ISEGS, FirstSolar, ~~NextLight~~ Silver State, the CalNev Pipeline Expansion Project, and DesertXpress could increase traffic congestion and flow; therefore, there could be cumulative impacts to access and use of emergency routes. The other foreseeable projects would work with local authorities to develop traffic management plans similar to those for the proposed project. The authorities could plan for potential

traffic delays using their knowledge of traffic patterns, and could schedule lane closures so they would not jeopardize traffic flow or the security of evacuation routes. Overall, a considerable increase in traffic congestion could result in a cumulative impact; however, traffic management plans would likely reduce this impact so that it would not be considerable.

Fire Hazards

This section discusses the combined effects on fire hazards of the proposed project and past, present, and reasonably foreseeable projects. The relevant impact of the proposed project is IMPACT HAZ-6: Expose People or Structures to Wildland Fires. Wildfire risks of construction and operations are associated with combustion of native materials due to smoking, refueling, sparks from welding, and operating vehicles and other equipment off roadways. Brushing activities for vegetation control and removal during construction could result in fire. These risks would be associated with construction of the proposed project and large foreseeable projects, as previously discussed. The applicant would implement a Fire Management Plan (APM HAZ-4) that would establish standards and practices to minimize the risk of fire danger, and, in case of fire, provide for immediate suppression and notification.

Past and present projects have contributed to the existing fire hazard conditions. The Ivanpah Valley in California has a moderate fire risk. In Nevada, the fire risk outside of Primm is not known, although the city of Primm has a low fire risk. Concurrent construction of the foreseeable construction in California, such as ISEGS, First Solar, the Calnev Pipeline Expansion, and the DesertXpress rail line, could increase the fire risks. However, each project would likely implement its own fire management program to reduce the potential risk of fires. Therefore, there would not be a considerable cumulative impact.

5.3.6.5 Alternatives

Because no activity is associated with the No Action Alternative, this alternative would not contribute to cumulative impacts associated with hazards.

Construction and operation of all the transmission routes and telecommunications alternatives would require use of hazardous materials. Since any spills would be cleaned up, there would not be the potential for impacts of the proposed project to combine with impacts of other projects and there would not be considerable cumulative impacts.

Most of the alternatives are unlikely to encounter any existing contamination. The telecommunications alternatives are in closer proximity to known hazardous materials and contamination. The Mountain Pass Telecommunications Alternative would cross through the Molycorp Mine facility. This portion of the telecommunication line would be constructed aboveground (e.g. an overhead wire); therefore, potential on-site contamination would not be unearthed. Construction through this type of facility would increase the potential for exposure of workers to hazardous materials or wastes. Project workers would have to comply with the health and safety requirements of the facility and those of the Applicant's Health and Safety Plan (MM HAZ-1). This alternative would also travel along the same corridor as the Molycorp Wastewater Pipeline which historically leaked, but the historical soil contamination was removed. This portion of this alternative would be both aboveground and underground. Since a cleanup has been conducted in this area, It would be unlikely that contaminated soil would be encountered. In addition, any known contamination would be removed and/or remediated prior to construction. Therefore, it would be unlikely for the proposed project to combine with impacts of this past project, so there would not be considerable cumulative impacts.

The Golf Course Telecommunications Alternative would be routed along the south side of the golf course, but would be strung aboveground; therefore it is unlikely that fly ash associated with the former Biogen land disposal facility would be disturbed during the installation of this alternative, so there would not be cumulatively considerable impacts.

Of the project alternatives, only Alternative Transmission Routes C and D and Subalternative E are near the proposed SNSA. Alternative Transmission Route C is closer to the proposed airport than is the proposed project, and Alternative Transmission D and Subalternative E would be further from the proposed airport than is the proposed

project. Closer proximity of structures to the proposed airport could increase safety hazards. However, ~~it is assumed that~~ the applicant would comply with FAA's Determination of Hazard/No Hazard for whichever alternative is selected and would comply with all FAA requirements upon construction of the SNSA. Therefore, as discussed above, there would be no significant cumulative impacts to airport safety.

Of the project alternatives, Alternative Transmission Routes C and D and Subalternative E, as well as Telecommunications Alternative (Mountain Pass) and Telecommunications Alternative (Golf Course), cross or are parallel to I-15, an evacuation route. Similar to the proposed project, encroachment permits would have to be obtained for these alternatives, and traffic management plans would have to be implemented in consultation with local transportation authorities. This would be the case for the other foreseeable projects, as well. Therefore, there would not be considerable cumulative impacts to emergency response/evacuation plans.

Similar to the proposed project, Alternative Transmission Routes A, B, C, and D and Subalternative E would not contribute to considerable cumulative impact to wildland fire hazards.

5.3.6.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP project and ISEGS. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and BLM 's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

The evaluation of cumulative impacts for this resource in the ISEGS ~~FSA/DEIS~~ documents considered the potential for simultaneous release of a hazardous chemical from the proposed ISEGS and release from other existing or foreseeable nearby facilities. It was determined that because of the quantities of hazardous chemicals to be stored at the facility, there would be no possibility of an offsite impact. In addition, there are no nearby facilities that use large quantities of hazardous chemicals, so there is little to no possibility that vapor plumes would mix to produce airborne concentrations that would present a significant risk. Hazardous material use, storage, and transportation would not pose a significant cumulative impact with respect to CEQA or NEPA regulations (CEC and BLM 2009 and CEC 2010a).

The BLM FEIS analysis of the construction of ISEGS and reasonably foreseeable future projects concluded that there was an increased likelihood for the release of hazardous materials and increase the potential for exposure of such materials to the public. Public health impacts of the ISEGS project would not combine with impacts of any past, present, or reasonably foreseeable projects to result in adverse cumulative impacts. Therefore, no mitigation is recommended to address potential cumulative project impacts (BLM 2010).

Cumulative Analysis of the Whole of the Action/Cumulative Action

The cumulative impacts of the EITP and ISEGS projects combined would be similar to those of the proposed project alone. Since any hazardous materials spills that occurred during construction would likely be small, localized, and cleaned up, there would not be the potential for impacts of both to combine with impacts of other projects, and there would not be a considerable cumulative impact.

During operations, the proposed project would store fuel at the substations. ISEGS would use large quantities of natural gas. Calnev currently transports multiple different types of fuels. Operations of any of the new facilities would require transportation, storage, use, and disposal of hazardous materials according to local, state, and federal regulations. Implementation of SPCC plans would be necessary, depending on the amounts of fuel stored. For each

operation, standards and codes would apply to ensure the safety of workers and the public. Although there would be multiple projects operating within the cumulative impact area of the Ivanpah and Eldorado valleys and each would increase the risk of spills, contamination, and exposure to the public, those risks would be minimized by the projects operating under legal requirements and industry standards. Any hazardous materials spills that occurred during operations would likely be small, localized, and cleaned up. Therefore, there would not be the potential for impacts of the combined project to combine with impacts of other projects, and there would not be considerable cumulative impacts due to spills, contamination, or accidents related to the transportation, storage, use, or disposal of hazardous materials.

Since ISEGS would not be within 2 miles of an airport nor would it involve lane closures of major thoroughfare, the contribution to cumulative impacts would only be from the EITP, as discussed above. Therefore, there would be no considerable cumulative impacts to airports.

ISEGS would use large quantities of natural gas during operations and therefore there are fire risks. However, the natural gas would not be stored on site but would be delivered via an existing underground pipeline. ISEGS would reduce the risk of a fire and/or explosion to insignificant levels through adherence to applicable codes and implementation of effective safety management practices. In addition, the proponent's Safety Management Plan would address handling and use of natural gas and reduce the potential for equipment failure due to improper maintenance or human error. As discussed above, each foreseeable project would likely implement its own fire management program to reduce the potential risks of fires. Therefore, there would not be a considerable cumulative impact due to fire risk.

5.3.7 Hydrology and Water Quality

5.3.7.1 Geographic Extent and Timeframe

In general, impacts to hydrology and water quality are contained within watersheds. Water quality regulations, such as total maximum daily loads (TMDLs), are generally implemented at the watershed level. Therefore, the cumulative impacts area for this cumulative analysis of hydrology and water quality consists of the watersheds and subwatersheds of the Ivanpah and Eldorado valleys. The timeframe for the cumulative analysis is the life of the project because the presence of the project would alter the hydrology of the area as long as it is present.

5.3.7.2 Past and Present Project Impacts / Existing Cumulative Conditions

Although there is some development in the cumulative impact area for hydrology and water quality, the area is largely undeveloped, and the hydrology and water quality reflect this. Development within Primm, Nevada, at the Primm Valley Golf Course, and at the Molycorp Mine has altered the natural hydrology of these areas and, therefore, has contributed to the current condition of the hydrology and water quality in the cumulative impacts area.

The presence of the town of Primm and the Primm Valley Golf Course has altered drainage patterns. The town and golf course use groundwater drawn from the local aquifer, thus further altering hydrology. Construction of the town and golf course altered the local topography. The Molycorp Mine also has altered the landscape and changed the local hydrology. It uses water in operations and it has a surface impoundment. The mine has also introduced contamination into the local water table. Formerly, the mine discharged wastewater to Ivanpah Dry Lake through a wastewater pipe. The effects of these past projects were considered in the impact assessment for the EITP in Section 3.8.3.

5.3.7.3 Reasonably Foreseeable Future Projects

Reasonably foreseeable future development throughout the cumulative impacts area for hydrology and water quality is dominated by proposed renewable energy projects, specifically ISEGS, First Solar, and ~~NextLight~~ Silver State (see Figure 5-1 and Tables 5-1 and 5-2). Other projects within the watersheds that could contribute to cumulative impacts

include the SNSA, the Calnev Pipeline Expansion, and the DesertXpress High-Speed Rail. The SNSA is ~~still in the planning phase and, if built, would not be completed until 2020~~ currently on hold and would not be built before 2020; therefore, it could only contribute to impacts during operations. The other projects could have overlapping construction schedules; therefore, they could contribute to cumulative impacts during construction (see Table 5-3).

5.3.7.4 Cumulative Impact Analysis

The potential for hydrology and water quality impacts of the proposed project to combine with the effects of other projects within the geographic extent and timeframe of the cumulative analysis is described below.

Hazardous Materials Spills

This section addresses the combined effects of the EITP on potential hazardous material releases (IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater) and the similar reasonably foreseeable future projects. The potential cumulative effects of past and present hazardous material releases are discussed in 5.3.6 Hazards, Health, and Safety.

Although hazardous material spills can occur on any construction site, the applicant would implement many programs and measures to reduce the potential for a spill and to address ones that occur. These include measures such as a hazardous materials and waste handling management program (APM HAZ-2) that has emergency release response procedures to address any potential release of hazardous materials (APM W-10). Since the EITP would store quantities of fuel at the substations, SPCC plans (APM W-14) would be required.

The large reasonably foreseeable future construction projects, such as ISEGS, FirstSolar, the Calnev Pipeline Expansion, SNSA, and DesertXpress, would also be required by law to implement a SWPPP because of the amount of soil that would be disturbed and would likely have the same type of hazardous materials management programs as the applicant. They also would be required by law to implement an SPCC plan if they would have aboveground oil storage capacity greater than 1,320 U.S. gallons or completely buried oil storage capacity greater than 42,000 U.S. gallons.

With successful implementation of the spill prevention measures, any release from either the EITP or the reasonably foreseeable future projects would likely have short-term and localized effects. Given the ephemeral nature and small number of water bodies in the area, considerable cumulative impacts to water quality would not be likely. In addition, groundwater is located from over 200 feet to over 500 feet below ground surface within the Ivanpah Valley, and it is unlikely any contamination would migrate to that depth before actions were taken to remediate it. Therefore, it is unlikely that there would be a significant cumulative impact to water quality that would result in a violation of water quality standards.

Erosion

This section addresses the potential for erosion from the combined impacts of the EITP and past, present, and reasonably foreseeable future projects. The relevant impacts of the EITP are IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater and IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns.

The estimated total land disturbance from the EITP would be approximately 470 acres during construction, and permanent disturbance would be approximately 60 acres. ISEGS would disturb approximately 4,100 acres and ~~NextLight~~ Silver State would disturb approximately 3,000 acres. First Solar has requested use of approximately 4,100 acres, and the SNSA would require approximately 6,000 acres. Both DesertXpress and the Calnev Pipeline Expansion would be linear projects. Calnev would have an approximate 100-foot construction corridor. The construction corridor for the DesertXpress is not known but the permanent ROW would be 60 feet (URS 2007 and USDOT 2009). In the Eldorado Valley, Bull Frog Green Energy has requested a ROW of over 3,300 acres and Power Partners Solar Project has requested over 3,800 acres in ROWs; however, not all this land would likely be developed. Similarly Cogentrix Solar

Services has requested ROWs for approximately 30,000 acres in the Ivanpah Valley; however, if built only a portion of this land would be developed.

During construction of the EITP, the applicant would implement the required SWPPP and MM W-1 (Erosion Control Plan). This would help ensure all the appropriate erosion control measures were used during construction to prevent onsite or of-site siltation or erosion. Since the EITP would mostly be replacing an existing transmission line, the installation of replacement towers would not substantially alter existing drainage patterns. The access roads, substations, and tower foundation would be installed using erosion controls that are consistent with design standards and practices and/or landowner requirements.

The large reasonably foreseeable future construction projects, such as ISEGS, FirstSolar, ~~NextLight~~ Silver State, the Calnev Pipeline Expansion, SNSA, and DesertXpress, would also be required by law to implement SWPPPs to prevent erosion. Therefore, there would not be a considerable cumulative impact to erosion in the cumulative impact area.

~~**Cumulative Impact WAT-C-1:**~~

Water Use

This section addresses the combined effects of water use by the EITP and past, present, and reasonably foreseeable future projects. The relevant impact of the EITP is IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge.

The EITP would use between 30.6 acre feet per annum and 38.3 acre feet per annum of water during construction. The source of this water is currently unknown but would be a local vendor or agency. The applicant would not drill any wells. MM W-3 would require the applicant to develop and implement a Water Use Plan that specified all resources and the potential impacts. The EITP would use between 30.6 acre-feet per annum (AFA) and 38.3 AFA of water during construction. As described in section 3.8.1.5, the applicant has arranged to acquire this water from existing wells at the Molycorp Mine Mountain Pass facility within the Ivanpah and Shadow Valley fresh water production well fields. The 2001 CDPH Source Water Drinking Assessments state that the Ivanpah well field can produce 675 gpm and the Shadow Valley well field can produce 830 gpm, leading to a combined production rate of 1,505 gpm. The proposed project would require 35 gpm, or 2.3 percent of the available water from the well fields. Molycorp currently uses only a small fraction of this water and has agreed that there would be sufficient water available for the proposed project. To limit excessive groundwater withdrawals, MM W-2 sets maximum water use limits for the construction and operation phases of the proposed project; therefore, construction of EITP would have a negligible impact on water resources.

The foreseeable solar projects within the Ivanpah Valley are shown in Figure 5-1. Within the Ivanpah Valley, ISEGS, FirstSolar, and NextLight solar projects would occupy over 11,000 acres. ~~ISEGS is the only project within the Ivanpah Valley that has completed an environmental analysis.~~ ISEGS has estimated that it would use no more than 100 acre feet per annum during ~~construction and~~ operations. ISEGS would draw its water from two wells located close to its site (~~CEC 2010~~ CEC 2010Aand BLM ~~2009~~ 2010). ~~Therefore, First Solar would probably use 100 acre feet per annum and NextLight would use somewhat less. It is not known what the source of water would be for the EITP or most of the other proposed solar projects.~~ During construction, water demand would vary between 111 AFY and 217 AFY depending on the portion under construction (BLM 2010). Silver State would use no more than 200 acre-feet in any one year during construction, and 21 AFA during operations (BLM 2010a).It is not known what the source of water would be for the EITP or most of the other proposed solar projects; however, water for the Silver State Solar Project would come from two wells drilled on the project site.

The capacity of the local aquifer is not currently known. The town of Primm and the Primm Valley Golf Course are drawing upon water in the Ivanpah Valley. Although the construction of the reasonable foreseeable projects could result in a considerable cumulative impact on the local water table, the contribution of EITP would be negligible. ~~Without knowing the water sources for the EITP or the reasonably foreseeable future projects, it is not possible to~~

~~assess the magnitudes of the impacts, but if all the water needed to support the foreseeable projects were drawn from the local water table, there could be a considerable cumulative impact on the local water table. The EITP's contribution would depend on the volume of water to be drawn from the local aquifer and the total amount drawn by other foreseeable projects. Because the source of water is currently unknown, MM PUSVC-C-1 is necessary.~~

~~MM PUSVC-C-1. This mitigation measure will require the applicant to demonstrate to the BLM and CPUC that the supplier of the water to be used for the EITP has an adequate supply such that the existing local public and private water usages are not altered. Implementation of this mitigation measure would reduce the EITP's incremental contribution to less than significant or to minor.~~

Groundwater Recharge

This section addresses the combined effects on groundwater recharge of the EITP and past, present, and reasonably foreseeable future projects. The relevant impact of the EITP is IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge.

Most of the construction of the EITP would involve replacement of existing towers; however, the Ivanpah Substation, microwave tower site, expansion of the Eldorado Substation, and new tower locations would be new facilities. Altogether, the EITP would be in four largely undeveloped groundwater basins covering 1,587 square miles (or more than 1 million acres). Assuming there would be approximately 60 acres of impervious surfaces associated with the EITP, that area would total 0.01% of surfaces in the cumulative impact area, a miniscule increase. The areas with the most impervious surfaces in the cumulative study area include Primm (880 acres) followed by Nevada Solar One (approximately 400 acres). I-15 also represents an impervious surface in Ivanpah Valley. If the SNSA is approved, it would occupy approximately 6,000 acres; the wind projects could occupy over ~~70,000 acres~~ 57,000 acres; and the solar projects could occupy ~~28,000 acres~~ 54,000 acres, all built on previously undisturbed land. Although solar projects would not pave the total area that they occupy, the solar panels would re-direct precipitation. Also, while wind projects would not create as impervious or semipervious a surface as solar projects, they would add some impervious surfaces to the cumulative study area. Collectively, these projects could result in a cumulative alteration of the local groundwater recharge. Insufficient information is available to characterize or quantify the exact nature of the cumulative alteration; however, considering the relative lack of impervious surfaces that would be associated with the EITP, it is estimated that the area of new impervious surfaces created by the EITP would be so small in reference to the size of the recharge area that it would not alter groundwater recharge within the local basins and would therefore not contribute to a considerable cumulative impact.

Alteration of Drainage Patterns

This section discusses the combined effects on drainage patterns of the EITP and past, present, and reasonably foreseeable projects. The relevant impacts of the EITP are IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns and IMPACT HYDRO-4: Altered Course of Stream or River due to Modification of Surface Drainage Patterns.

Past projects have altered drainage patterns by changing local topography. Each time a site is graded and developed, natural drainage features are culverted, redirected, or, in the case of small desert washes, eliminated. Aerial photographs of Primm, the Primm Golf Course, the I-15 corridor, and Molycorp Mine show small ephemeral washes around the perimeter of each site that do not continue into these developed areas.

Construction of the EITP could alter drainage patterns; however, the applicant would avoid stream channels (APM W-1) and avoid placing transmission poles within active drainage channels (APM W-4) to minimize the alteration. Alterations that occurred would likely be short term and localized, but some could be long term and localized. In an additional effort to prevent alteration of drainage patterns, the applicant would be required to conduct onsite flow modeling (MM W-4). The modeling would predict any alteration in flow paths and establish a channel system to mitigate any impacts. ISEGS, First Solar, ~~NextLight~~ Silver State, SNSA, Bull Frog Green Energy, Cogentrix Solar Services, Power Partners Solar, DesertXpress, and Calnev Pipeline Expansion would be constructed on the floors of

the Ivanpah or Eldorado valleys and could also alter drainage patterns. As part of the permitting process, the projects would be required to coordinate development with the U.S. Army Corps of Engineers. The projects would likely be required to minimize changes to natural drainage patterns; however, the presence of ~~29,000 acres~~ 54,000 acres of facilities on the floors of the Ivanpah Valley and the Eldorado Valley could nonetheless alter drainage patterns in the valleys. Although the alterations would be localized, given the acreage that these projects could cover within the valleys there could be considerable cumulative alterations. Insufficient data are available to predict the exact nature of these alterations; however, the EITP's contribution to cumulative impacts would be localized and relatively small given its footprints for construction (470 acres) and operations (60 acres).

Flood Hazards

This section discusses the combined effects on flood hazards of the EITP and past, present, and reasonably foreseeable future projects. The relevant impacts of the EITP are IMPACT HYDRO-5: Modified Runoff Characteristics that Exceed Existing Stormwater Systems, Possibly Leading to Flooding or Inundation by Mudflow; IMPACT HYDRO-7: Exposure to a Significant Risk of Flooding; and IMPACT HYDRO-6: Placement of Structures within a 100-year Flood Hazard Area.

During construction of the EITP, flooding or inundation of the alluvial fans crossed by the EITP due to random storm events would be unlikely. Alluvial fans have established drainage patterns for normal precipitation events, but the sediments of alluvial fans can shift during flash floods. The applicant would keep construction equipment out of flowing streams (APM W-1), avoid tower placement in active drainage channels (APM W-4), create a system of diversion dikes around any sites where active channels could not be avoided (APM W-5), collect and divert runoff from roadways (APM W-6), develop a ditch and install drainage devices to reduce stormwater speed (APM W-7), and implement a SWPPP (APM W-9). Construction across Ivanpah Dry Lake would result in disturbance to the playa surface and normal flooding processes. MM W-5 (Restoration of Dry Lake) would require the applicant to restore the lake surface to preconstruction conditions. Even with these measures, construction activities could change natural runoff patterns, thereby affecting waterbody volume and flow, possibly affecting flooding patterns of local waterways. Using the results of the hydrological modeling of the alluvial fan (MM W-6), the applicant would site structures in those areas in a way that would reduce the possibility of floods.

ISEGS, First Solar, ~~NextLight~~ Silver State, Calnev Pipeline Expansion, SNSA, Bull Frog, Cogentrix Solar Services, Power Partners, and DesertXpress would be constructed on alluvium on the valley floors and sloping alluvial fans. The analysis of the ISEGS project indicated that the ISEGS project area is subject to flash floods and mass erosion. The results of hydrological modeling indicated that a 100-year flood event would inundate most of the proposed ISEGS project area through canalized and sheet flows and would be primarily erosive rather than depositional. Scour analysis was used to ensure that the project design could withstand flash flood flows with minimal damage to site structures and heliostats, and ISEGS must implement a storm water damage monitoring and response plan (CEC and BLM 2009 and CEC 2010a). The Calnev Pipeline Expansion and the DesertXpress High-Speed Rail (segment 4B) would cross Ivanpah Dry Lake. DesertXpress would implement mitigation to restore areas to preconstruction conditions to allow for revegetation and would give special attention to erosion control near ephemeral drainages and within playas (USDOT 2009). No specific restoration requirements are specified for the Calnev Pipeline Expansion (URS 2007). The DesertXpress drainage facilities and culverts would be sized to handle the flow of a 100-year, 24-hour storm event (USDOT 2009). The other foreseeable future projects would be required to take similar measures to reduce the potential adverse effects of flood events; therefore, the potential cumulative risks would be reduced. As long as the foreseeable projects did the appropriate hydrologic modeling to site their facilities in the areas with lowest flood risk and their structures were designed to accommodate a 100-year, 24-hour flood event, there would not be a significant cumulative impact to flood risks. However, most of the reasonably foreseeable future projects have not completed their environmental analysis, so it is not possible to determine if all the proper steps will be taken.

Debris Flow

This discussion focuses on the consequences of debris flow and the related issues in IMPACT HYDRO-5: Modified Runoff Characteristics that Exceed Existing Stormwater Systems, Possibly Leading to Flooding or Inundation by

Mudflow. As discussed above, portions of the cumulative impact area are vulnerable to flooding. A potential consequence of flooding is debris flow in flood waters. If EITP structures were to become detached from their footings or foundations, they could be part of a debris flow. Debris flows also include rocks, boulders, and any other objects that are dislodged by a flood. Since multiple structures may be built near each other, one dislodged EITP tower could dislodge or damage other nearby structures, which could then damage or dislodge still others, thus causing a public safety hazard. The applicant would implement multiple measures (APM W-1, APM W-4, APM W-5, and APM W-7) to ensure that active drainage channels would not be hindered by construction activity. In addition, hydrological modeling of the alluvial fan (MM W-6) would be used in the project siting process to ensure that project components would be sited in areas of the alluvial fan that are least likely to shift. This would reduce the long-term public safety risk associated with flooding to moderate.

Other foreseeable future projects on alluvial fans include ISEGS, ~~NextLight~~ Silver State, First Solar, and DesertXpress; however, these projects may not do comparable modeling for siting of facilities. The Big Horn Electric Generating Station is located on an alluvial fan. Therefore, there could be considerable cumulative impacts to public safety due to debris flow during flooding. The EITP's contribution to cumulative public safety risks associated with flooding would be long term (throughout the life of the project) but minor. Because the EITP would have a smaller footprint than many of the foreseeable projects in the Ivanpah and Eldorado valleys and the towers would be designed to resist scour, debris flows would be more likely to pass EITP structures without dislodging them.

100-Year Flood Zone Hazards

The transmission line tower footings in Ivanpah Dry Lake and the telecommunication line near Nipton Road would be located within a 100-year flood hazard zone. During a flood event, flood flow would be diverted at the location of individual structures; however, the topography of the area is sufficiently flat such that localized diversions would not significantly redirect or impede the overall flow of flood waters within the cumulative impact area. Additionally, the tower footings' size would not significantly redirect or impeded the flow of flood waters, and the applicant would design transmission tower footings to withstand scour and inundation from a 100-year flood (APM W-3). All other foreseeable projects within a 100-year flood zone would undertake similar measures to reduce this potential cumulative impact; however, given the number of new structures in the area, there could be an increase in the volume of flood waters diverted. Due to the relatively small number of new EITP structures and components in the over all cumulative impact area, the EITP would likely have a less than significant or negligible contribution to this cumulative impact.

5.3.7.5 Alternatives

The No Action Alternative involves no activity; therefore, there would be no impacts on water resources or contributions to cumulative impacts.

Because the transmission and telecommunication alternatives merely vary the route of the proposed project, the same components would be built, and the cumulative impact on hydrology and water resources would be similar to the proposed project.

5.3.7.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP and ISEGS. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC, the CEC Final Decision, and the BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~According to the ISEGS FSA/DEIS, the effects of ISEGS, combined with other projects, would be to increase the total basin pumping by 11%. This is a minimal increase and would not substantially reduce flow to Las Vegas Valley or other basin users. ISEGS and cumulative pumping from existing and proposed projects would therefore not substantially deplete groundwater supplies or interfere substantially with groundwater recharge (CEC and BLM 2009).~~

Construction and operation of ISEGS would disturb approximately 3,600 acres of land and slightly increase the volume of stormwater and the sediment load to the Ivanpah playa. The impacts of storm water and sediment transport from previously constructed developments to the Ivanpah playa have been less than significant. Future projects would have to comply with all existing laws and regulations and would have to be designed to avoid, manage, and mitigate potential storm water and sediment impacts. Both the BLM and CEC concluded that the construction and operation of ISEGS would not result in adverse cumulative impacts to downgradient resources from erosion, storm water, or sediment aggradation or degradation (BLM 2010 and ~~CEC 2010)~~CEC 2010A).

BLM and CEC evaluated the groundwater needs of the existing and reasonably foreseeable projects in the Ivanpah Valley and determined that ISEGS' groundwater use would contribute only 1.8 percent to the existing and only 1.7 percent of the reasonable foreseeable cumulative pumping volume in the Ivanpah Valley groundwater basin(BLM 2010 and ~~CEC 2010)~~CEC 2010A).. Their analysis found that the total water demand would not exceed the annual recharge to the groundwater basin (BLM 2010 and ~~CEC 2010)~~CEC 2010A).

Cumulative Analysis of the Whole of the Action / Cumulative Action

The cumulative impacts of the Whole of the Action / Cumulative Action would be similar to that of the EITP. Similar to the EITP, the Whole of the Action / Cumulative Action combined with foreseeable future projects in the cumulative impact area would not contribute to cumulative impacts on groundwater and surface water quality because all projects would be required to comply with the appropriate laws and regulations for the management of hazardous materials. Likewise, both the EITP and the ISEGS project would be required to comply with SWPPPs to prevent on-site and off-site erosion during construction, thereby limiting erosion to negligible or less than significant levels. As discussed above, the Whole of the Action / Cumulative Action, combined with the other foreseeable projects, could result in considerable cumulative impacts to groundwater quantity if water use is not strictly controlled through the implementation of measures similar to MM W-2 ~~and MM PUSVC-C-1~~. Though water use for ISEGS would be more than for the EITP, water use for both projects would be limited through implementation of mitigation measures, resulting in negligible or less than significant impacts to groundwater quantity; however, the foreseeable future projects in the cumulative impact area could result in considerable cumulative impacts to groundwater recharge due to the increase in impervious surfaces. The Whole of the Action / Cumulative Action would increase impervious area in the Ivanpah Valley, especially on the west side of Ivanpah Dry Lake. Because both projects were found to have negligible or less than significant impacts to groundwater recharge and their combined acreage would still be small relative to the whole groundwater basin, the increases in impervious area for the Whole of the Action / Cumulative Action would also have negligible or less than significant reductions in groundwater recharge.

As stated above, the construction of reasonably foreseeable future projects could result in considerable cumulative impacts to drainage patterns. Due to the combined number of structures, the Whole of the Action / Cumulative Action could have minor, long-term impacts to drainage patterns resulting in increased flooding risk, especially on the west side of Ivanpah Dry Lake near ISEGS and the Ivanpah Substation. The Whole of the Action / Cumulative Action could also result in minor, long-term increase in risk associated with debris flow damage. Because the Whole of the Action / Cumulative Action would alter drainage patterns, there would be an increased risk for debris flows. If a debris flow were to occur and cause the collapse of an EITP transmission tower near ISEGS, it could result in more damage to ISEGS structures and subsequently in additional material, specifically, mirrors, in the debris flow. This would increase the cumulative risk associated with debris flow damage. ~~However, as described in Section 3.8.5.4, "ISEGS Conditions of Certification / Mitigation Measures," the ISEGS FSA/DEIS recommends that the CEC impose Condition of Certification SOIL& WATER-5, which requires BrightSource to design ISEGS such that heliostats are reinforced to withstand 6 feet of scour.~~

However, the BLM's FEIS and CEC 's Final Decisions recommends implementation of Condition of Certification SOIL&WATER-5, which requires BrightSource to design ISEGS such that heliostats are reinforced to withstand a 100-year flood event. Additionally, they are required to develop a Stormwater Damage Monitoring and Response Plan that includes a strategy to clean up and mitigate broken or transported heliostats (CEC 2010a and BLM 2010). BrightSource would also be required to establish a baseline and monitor for changes to the surface of Ivanpah Dry Lake and would develop standards and procedures for reassessing the proposed stormwater management plan if it does not perform as planned. SOIL&WATER-5 would reduce the risk and mitigate the impacts of debris flow damage; therefore, the Whole of the Action / Cumulative Action would have negligible or less than significant cumulative impacts under this criterion.

ISEGS would not be located within a 100-year flood hazard zone; therefore, the potential for the Whole of the Action / Cumulative Action to impede or redirect flood flow is consistent with the EITP and negligible or less than significant.

5.3.8 Land Use

5.3.8.1 Geographic Extent and Timeframe

Land use impacts caused by the EITP would be limited to grazing allotments, Animal Unit Months (AUMs) allocated for grazing, and designated areas within the Ivanpah Valley; therefore, the geographic area analyzed for cumulative land use impacts is limited to land uses in the Ivanpah Valley. The timeframe for this analysis is the period of construction and operation of the project because the land use changes would be remain for as long as the transmission line was operational.

5.3.8.2 Past and Present Project Impacts

As discussed in Section 3.9, "Land Use," almost all of the land on the California side of the proposed EITP route is managed by the federal government through the BLM. Since the California Desert Conservation Area Plan was adopted in 1980 (as amended), all land within the California Desert Conservation Area has been given specific designations with regard to allowable use. For example, energy corridors were designated to place energy projects, such as transmission line and natural gas pipeline projects, as close together as feasible.

Since Nevada became a state, nearly all of the land in the Eldorado and Ivanpah valleys has been managed by the federal government through the BLM for multi-purpose uses, such as for recreational use, livestock grazing, and energy project ROWs, such as electric and gas transmission projects, fiber-optic cable projects, and power generating projects. In the mid-1990s the Desert Tortoise Recovery Plan (Mojave Population) was initiated, and the BLM Las Vegas Field Office designated the Piute-Eldorado ACEC in the Eldorado Valley to provide protection of desert tortoise and critical desert tortoise habitat. In 1998, the BLM Las Vegas Field Office adopted the current resource management plan which provides management recommendations for all of the land under its jurisdiction, including all BLM land crossed by the proposed project in Nevada.

In the mid-1990s, a large area of land (the Eldorado Land Sale Area), including portions of land now known as the BCCE, ~~surrounding the Eldorado Substation~~ was transferred to Boulder City ~~and Clark County~~ who subsequently granted a conservation easement on a portion of the lands. The area ~~and~~ is managed under the Clark County MSHCP, the primary goal of which is to protect desert tortoise and critical desert tortoise habitat. This action prohibits any development within the BCCE unless given written approval from Boulder City and Clark County.

5.3.8.3 Reasonably Foreseeable Future Projects

For cumulative impacts to land use policies, grazing allotments, AUMs allocated for livestock, and designated areas, the First Solar Photovoltaic Project, ISEGS, DesertXpress, and the Joint Port of Entry facility were determined to

contribute to cumulative impacts of the proposed project and alternatives. Descriptions of these projects are provided in Tables 5-1 and 5-2, and their locations are given in Figure 5-1.

The SNSA is a reasonably foreseeable future project. To date, the SNSA has not been approved and the EIS process for the SNSA is indefinitely on hold ~~not scheduled to be published until late 2012 or early 2013~~. However, Clark County has included in their South County Land Use Plan of 2008 the following goals and policies for the Ivanpah Airport Environs Overlay:

- *Goal SC13: Provide for compatibility between Ivanpah Airport Environs and existing or proposed land uses.*
- *Policy SC13.1: New development projects located in the Ivanpah Airport Noise Compatibility Area (ANCA) shall comply with additional ANCA land use regulations.*
- *Policy SC13.2: Encourage building and structures to comply with any regulations established for the Ivanpah Airport Noise Compatibility Area (ANCA) unless deviations are deemed appropriate by the Airport Hazard Areas Board of Adjustment.*
- *Policy SC13.3: Encourage development patterns and standards compatible with the future operations of the Ivanpah Airport since most of Jean and Primm will be within the Airport Noise Compatibility Area (ANCA).*

These restrictions would only apply to the Ivanpah Airport Environs Overlay (see Figure 5-1 or Figure 3.9-1). Any projects that are proposed within the Ivanpah Airport Environs Overlay would have to adhere to the above guidelines and policies.

The applicant will incorporate any FAA recommendations when the SNSA is constructed. ~~As discussed in Section 5.3.6, "Hazards, Health, and Safety," MM HAZ-2 requires the applicant to consult with the FAA to determine if a Hazard/No Hazard Determination is required for the EITP. The applicant would then be required to incorporate any recommendations into their final design prior to EITP construction.~~ Because the SNSA is a reasonably foreseeable future project, it is expected that the FAA could require special lighting on certain transmission towers or other measures. The FAA is also required to assess whether any reasonably foreseeable future projects located within 20,000 feet of the airport would represent hazards or obstructions to air navigation if SNSA was approved. Any new project that represented an airport risk would either not be approved or would have to be modified or mitigated such that it would not represent an airport risk when it was constructed or operational.

5.3.8.4 Cumulative Impact Analysis

The potential for impacts of the EITP from land use, grazing allotments, AUMs allocated for grazing, and designated areas to combine with the effects of other projects within the geographic extent and timeframe of the cumulative analysis is described below. There would be construction-related impacts on the Ivanpah Dry Lake Recreation Area and the Jean/Roach Dry Lake SRMA. Cumulative impacts to those recreation areas are discussed in this chapter in Section 5.3.13, "Recreation."

Grazing Allotments

The EITP would have long-term impacts to grazing in the cumulative impact area. Acreage and AUMs of grazing allotments would be permanently impacted by the EITP when combined with other future foreseeable projects as provided in Table ~~5-8~~ 5-9.

Table ~~5-8~~ 5-9 Permanent Acreage and AUM Loss to the Clark Mountain Grazing Allotment

Total Clark Mountain Allotment Acreage			Total Clark Mountain Allotment Available AUMs	
97,560			*1,428*	
	Acreage Loss	Acreage Loss as a Percentage	AUM Loss	AUM Loss as a Percentage
EITP				
Proposed Transmission Route (Excluding Ivanpah Substation)	38.5	0.04%	0.66	0.05%
Transmission Alternative C	5.3	0.005%	0.09	0.00001%
Transmission Alternative D	0.2	0.00001%	0.02	0.00001%
Future Foreseeable Projects*				
ISEGS (Including Ivanpah Substation)	~~4,073~~ 3,564	~~4.2%~~ 3.6%	~~70.0~~ 52	~~4.9%~~ 3.6%
First Solar Photovoltaic Project	4,160	4.3 %	71.0	5.0%
DesertXpress	87	0.09%	1.5	0.1%
I-15 Port of Entry	~~unknown~~ 133	~~Unknown~~ 0.1%	Unknown	Unknown

* Please note that Calnev was not considered in this analysis because it is an underground pipeline system. Its presence does not affect grazing allotments.

The EITP would remove for the lifetime of the project approximately 38.5 acres of land from the Clark Mountain Grazing Allotment and reduce the allotment by 0.66 AUMs. If the EITP and the other foreseeable projects were constructed, the total grazing acreage loss to the Clark Mountain Allotment would be approximately ~~8,320 acres~~ 7,983 acres with an AUM loss of ~~142.5~~ 125.2. This represents approximately ~~8.59%~~ 8.1 percent of the total acreage and an estimated ~~10%~~ 8.76 percent of the AUMs allocated for livestock in the Clark Mountain Grazing Allotment. This impact is determined to be an unavoidable cumulatively considerable impact; however, the EITP's contribution would be negligible because the EITP's contribution to acreage and AUM loss would be less than half of one percent of the total acreage and available AUMs within the Clark Mountain Allotment. Such an incremental contribution to total acreage and AUM loss is so small as to be considered negligible.

Land Use Policy

The proposed EITP route, DesertXpress, and the Calnev Pipeline Expansion would cross through land designated as the Ivanpah Airport Environs Overlay for the SNSA. In order to ensure that there are no impacts related to land use planning efforts for the future SNSA, the applicant would have to adhere to the policies of the South County Land Use Plan. ~~Implementation of MM HAZ-2 would help fulfill these policies by requiring consultation with the FAA. MM HAZ-2 requires the applicant to consult with the FAA to determine whether a Hazard/No Hazard Determination is required and whether the FAA has any recommendations, such as lighting on transmission towers, which should be integrated into the final design.~~ The proponents of DesertXpress and the Calnev Pipeline Expansion would also have to adhere to the policies of the South County Land Use Plan or seek an exemption that would be agreed to by Clark County in order to proceed with construction. Therefore, there would not be a cumulatively considerable impact to land use policies in Clark County.

The proposed project would be routed through the BCCE, which is managed by Clark County and the City of Boulder City with specific utility corridors reserved to the BLM. No reasonably foreseeable future project is proposed within this conservation easement, so there would not be any cumulative impacts.

5.3.8.5 Alternatives

Grazing Allotments

The permanent grazing acreage lost from development of the foreseeable projects in the Clark Mountain Grazing Allotment and Alternative C would be 8,325.3 with an AUM loss of 142.5 and would be 8,317.2 with an AUM loss of 142.52 for the combined development with Alternative D. Both scenarios represent 8.6% of the total acreage and 10% of the AUMs allocated for livestock in the Clark Mountain Grazing Allotment (see Table 5-8). This impact would be an unavoidable significant cumulative impact to the Clark Mountain Grazing Allotment. However, the incremental contribution of these alternatives would be negligible because they would contribute to less than 5% of the grazing acreage and AUM loss.

5.3.8.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative impacts of the combined EITP and ISEGS. The section first summarizes the Land Use and Livestock Grazing cumulative analysis from ISEGS FSA/DEIS prepared by the CEC and the BLM and then evaluates the combined impacts of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the CEC's Final Decision and BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~Impacts of the ISEGS project would combine with impacts of present and reasonably foreseeable projects to result in a contribution to cumulative impacts in the Ivanpah Valley area related to land use that would be significant with respect to CEQA as well as NEPA. Impacts of the ISEGS project could also combine with the potential impacts of reasonably foreseeable renewable energy projects in the southern California Mojave Desert to result in significant and immitigable regional cumulative impacts related to land use.~~

Impacts of the ISEGS project would combine with impacts of present and foreseeable renewable energy projects to result in a contribution to cumulative impacts to land use in the Ivanpah Valley and Mojave Desert that would be a significant and unmitigatable cumulative impact because lands formerly available for multiple uses—habitat, grazing, recreation, and open space— would no longer be available (CEC 2010a and BLM 2010). In addition, BLM notes that the installation of ISEGS and foreseeable renewable energy projects could conflict or eliminate other future uses of designated utility corridors (BLM 2010).

~~In addition to the ISEGS facility, there are other reasonably foreseeable future actions that could contribute to impacts to the Clark Mountain Allotment. Regionally, impacts to livestock grazing in the planning area have been occurring for 100 years or more. Authorized and unauthorized vehicle use, maintenance, and construction of utility ROWs can have an impact to livestock grazing by removing vegetation used for forage. The impact of other proposed and probable development projects (mineral production, solar projects, rail lines, and airports) may be more substantial if they require significant reductions in the acreage of existing allotments.~~

~~Cumulative impacts on the Clark Mountain Allotment, as well as the overall availability of land for grazing, could result from the combination of the EITP with other proposed land uses that would require reduction of total permitted AUMs, including other solar energy projects and the proposed DesertXpress rail line. With respect to NEPA, the overall impact of the proposed projects in the area on the Clark Mountain Allotment may be considerable if the proposed DesertXpress line is constructed and the rail line cuts off livestock access to portions of the allotment. The ISEGS project, by itself, would reduce the area of the Clark Mountain Allotment by approximately 4% and would reduce the AUMs permitted on the allotment by 4.7%. Overall, the impact on the grazing allotment would not be significant with respect to CEQA because the discontinuance of livestock grazing at the ISEGS site would not contribute to considerable cumulative impacts to the desert environment or to livestock. With respect to NEPA, the overall impact~~

~~of the proposed projects in the area might be considerable if the DesertXpress line is constructed. However, the contribution of the ISEGS project to that cumulative impact would be relatively small.~~

Cumulative Analysis of the Whole of the Action / Cumulative Action

The EITP and ISEGS combined would permanently remove ~~4,073 acres~~ more than 3,600 acres from the Clark Mountain Grazing Allotment and reduce the allotment's AUMs by 70. This is ~~4.2%~~ 3.6% of the total acreage of the allotment and ~~4.9%~~ 3.6% of the AUMs allocated for livestock on the Clark Mountain Allotment. The total grazing acreage loss to the Clark Mountain Allotment as a result of the Whole of the Action / Cumulative Action and future foreseeable projects that would have permanent impacts to the Clark Mountain Allotment would be approximately ~~8,320 acres~~ 8,000 acres, with an AUM loss of ~~142.5~~ 125.2. This represents ~~8.59%~~ 8.1% of the total acreage and an estimated ~~10%~~ 8.76% of the AUMs allocated for livestock in the Clark Mountain Grazing Allotment. This impact is an unavoidable minor cumulative impact.

The EITP combined with ISEGS would have similar cumulative impacts as ISEGS when considered in conjunction with the foreseeable renewable energy projects to land use in the Ivanpah Valley and Mojave Desert. There would be a significant and unmitgatable cumulative impact to land use because lands formerly available for multiple uses—habitat, grazing, recreation, and open space— would no longer be available. And the installation of EITP, ISEGS and foreseeable renewable energy projects could conflict or eliminate other futures of designated utility corridors. However, the contribution of EITP and ISEGS would be approximately 3% of the approximate 128,000 acres that could be converted from open space to renewable or transportation projects.

5.3.9 Noise

5.3.9.1 Geographic Extent and Timeframe

Noise impacts are limited to where there are receptors to hear noise. Because the EITP route and the areas near substation locations are sparsely populated, there are only two noise receptors that could be potentially impacted by construction or operation noise. These are the Primm Valley Golf Club in California and the Desert Oasis Apartment Complex in Primm, Nevada. Development within 2 miles of these receptors could contribute to increases in ambient noise levels to these receptors. Noise impacts were limited to period of construction. Therefore, the geographic area analyzed for cumulative noise impacts is a 2-mile radius around each noise receptor and the timeframe for the analysis is the 18-month construction period.

5.3.9.2 Past and Present Project Impacts/Existing Cumulative Conditions

Noise, in general, reflects the current noise generated, rather than noise from past projects; therefore this cumulative analysis will focus on present conditions and the potential contribution of reasonably foreseeable future projects.

Ambient noise levels reflect current land uses and development. Ambient noise levels at certain locations along the project route are provided in Section 3.10.1.2, "Local Setting." The character of the area along the project route varies from desert open space to rural to urbanized. As discussed above, the Desert Oasis Apartment Complex and Primm Valley Golf Course are the current noise-sensitive receptors. The Desert Oasis Apartment Complex in Primm, Nevada, is in the urbanized area closest to the EITP route. At this location, current contributors to noise are I-15 and a nearby truck stop. The Primm Valley Golf Course is currently surrounded by open space. At this location, current contributors to existing noise levels are I-15 and noise due to golf course activities.

5.3.9.3 Reasonably Foreseeable Future Projects

Noise levels in San Bernardino and Clark counties reflect an increasing number of sources of noise due to increased highway traffic, air traffic, construction projects, and expanded development. Approved, pending, and reasonably foreseeable projects would add to the future expected noise levels throughout the geographic area. However, various

noise levels will continue to be experienced in the area regardless of projects, depending on the proximity to human activity. Open space and rural communities will remain the quietest.

Ongoing and anticipated development near the Primm Valley Golf Course is dominated by energy developments in California, specifically the Calnev Pipeline Expansion, ISEGS, and the First Solar Photovoltaic Project (see Table 5-1 and Figure 5-1). This trend will continue for reasonably foreseeable future projects forecasted throughout the project area. Anticipated development near the Desert Oasis Apartment Complex will include more urbanization as well as the Calnev Pipeline Expansion (see Table 5-2 and Figure 5-1). The potential for future projects to contribute to cumulative noise impacts would depend on their distance from the noise receptors as well as the potential for overlapping construction schedules. Approved, pending, and reasonably foreseeable future projects identified in this document would not increase the number of noise-sensitive uses in the area. The EITP has no adverse operational impacts from noise, so only projects that could have concurrent construction periods are considered in this analysis.

5.3.9.4 Cumulative Impact Analysis

Construction Noise

This section addresses the combined effects of construction noise from the EITP and past, present, and reasonably foreseeable future projects. The relevant impact from the EITP is IMPACT NOI-1: Project Construction Noise Exceeding Noise Levels or Standards and IMPACT NOI-5: Cause a Substantial Temporary Increase in Ambient Noise Levels in the Project Vicinity.

Increases in ambient noise levels due to EITP construction activities would be short term. EITP construction contractors would comply with local noise ordinances (APM NOI-1), keep construction equipment in working order (APM NOI-2), and maintain equipment according to manufacturer's recommendations (APM NOI-3). In addition, they would muffle the noise generated by construction equipment (APM NOI-4) and minimize idling time (APM NOI-5).

However, the EITP would contribute to an increase in ambient noise levels due to corona noise during operations. This increase would contribute to the anticipated increased ambient noise level for residents of the Desert Oasis Apartment Complex and users of the Primm Valley Golf Course. Existing and reasonably foreseeable future projects within 2 miles of these receptors could also contribute to a significant increase in ambient noise levels. Table ~~5-9~~ 5-10 lists the existing and foreseeable future projects within 2.5 miles of the Desert Oasis Apartment Complex and users of the Primm Valley Golf Course.

Table ~~5-9~~ 5-10 Existing and Foreseeable Projects within 2.5 miles of the Noise Receptors

Existing or Foreseeable Projects[1]	Distance from Noise Receptor (miles)
Projects Near Desert Oasis Apartment Complex	
EITP	*0.01*
KFC/Taco Bell	0.4
Calnev Pipeline	*0.5*
Primm Outlet Mall	0.9
BLM-sanctioned recreational activities	1.0
Primm Casino	1.7
Bighorn Electric Generating Station	1.7
Projects Near Primm Valley Golf Course	
Temporary asphalt batch plant	0.5
ISEGS	*0.5*
EITP	*0.6*
First Solar	*1.0*
Calnev Pipeline Expansion	*1.3*

Table ~~5-9~~ 5-10 Existing and Foreseeable Projects within 2.5 miles of the Noise Receptors

Existing or Foreseeable Projects[1]	Distance from Noise Receptor (miles)
Ivanpah Dry Lake Special Recreation Management Area	1.8
Ivanpah Substation	*2.4*

Note:
[1] Italics indicate reasonably foreseeable future projects.

Desert Oasis Apartment Complex

The analysis in Section 3.10, "Noise and Vibration," concluded that the installation of the proposed EITP would result in direct minor adverse noise impacts due to project construction at residences located at the Desert Oasis Apartment Complex for a 2.5-week period despite implementation of MM NOI-1. This analysis took into account the noise currently generated at this receptor from existing facilities, such as the Primm Outlet Mall, Primm Casino, and Bighorn Electric Generating Station. However, the largest contributors to noise at these apartments were traffic noise on I-15 and at the nearby truck stop.

Based on a projected 12-month construction period, installation of the Calnev Pipeline could occur at a rate between 1 and 2 miles per day in the vicinity of Primm; therefore, its potential impacts to the Desert Oasis Apartment Complex would be for one or three days. Calnev would implement noise control measures to ensure noise levels would be reduced to acceptable levels (URS 2007). If construction of the Calnev Pipeline was concurrent with construction of the EITP, the noise levels are unlikely to exceed the noise generated by the EITP because of the distances from the noise source to the receptor. Therefore, at this receptor, the cumulative impact would be equivalent to the direct impact from the EITP, which was evaluated as minor, short term, localized, and less than significant because of its duration. In addition, there are no noise level limits for construction noise in Clark County although construction must be limited to daytime hours.

Primm Valley Golf Course

Noise from the construction of the Ivanpah Substation would be less than 46 dBA at Primm Valley Golf Course. This level is lower than the 24-hour equivalent sound level (L_{eq}) of 55 dBA (ambient noise level) measured during the November 2008 ambient noise survey. Concurrent construction of the proposed Ivanpah Substation and ISEGS, First Solar, Calnev Pipeline, as well as other components of the EITP, would increase the volume of noise in the area. Data are available about the anticipated noise generated for ISEGS and the Calnev Pipeline; however, none are available for First Solar. The installation of the Calnev Pipeline and the EITP in this area would be short, so these projects would contribute to a very short increase in noise levels. In contrast, the substation would take 16 months to construct, ISEGS would take 48 months, and First Solar would probably take about 48 months also.

The estimated construction noise from ISEGS could reach levels of 50 dBA L_{eq} at the Primm Valley Golf Course. The ~~ISEGS FSA/DEIS estimated that the~~ combined construction noise from First Solar and ISEGS would reach levels of 51 to 56 dB at the Primm Valley Golf Course. However, if pile driving were necessary for construction of ISEGS, noise could approach 58 dBA at the Primm Valley Golf Course. Mitigation for this potential impact would be to limit pile driving to the hours between 7 a.m. and 7 p.m. (CEC and BLM 2009, CEC 2010a). The estimated combined construction noise at the Primm Valley Golf Course of the proposed Ivanpah Substation, the Eldorado-Ivanpah transmission line, likely noise generated from the construction of the Calnev Pipeline (based on noise generated from other pipeline construction projects and the distance from the receptor), ISEGS, and First Solar would be 59 dBA with pile driving at the ISEGS project and 57 dBA without pile driving. The level does not exceed San Bernardino County's allowable noise level of 60 dBA for other commercial purposes; therefore, there would not be a considerable cumulative impact.

Groundborne Vibration and Noise

This section addresses the combined effects of the groundborne vibration and noise from the EITP and from past, present, and reasonably foreseeable future projects. The relevant impact from the EITP is IMPACT NOI-3: Groundborne Vibration or Groundborne Noise due to Construction Activities.

Construction of the EITP is estimated to generate 76 velocity decibels (VdB) of groundborne noise at the Desert Oasis Apartment Complex. This level exceeds the FTA threshold of 75 VdB by 1 VdB. Concurrent construction of the EITP and the Calnev Pipeline could increase, but could also have no affect on, the level of groundborne vibration and noise at this receptor. Insufficient data are currently available to calculate the level, and it is not known whether concurrent construction would at occur at this location. Nevertheless, the combined impact would be limited to a short time period. Because of the short duration and as long as construction was limited to daytime hours, the cumulative impact would be less than significant.

5.3.9.5 Alternatives

Because no activity is associated with the No Action Alternative, it would not contribute to adverse cumulative noise impacts.

Alternative Transmission Routes A and B would not contribute to noise or groundborne vibration impacts at the two noise receptors because of their distances from the receptors, and therefore, they could not contribute to cumulative noise impacts.

Alternative Transmission Route C and D and Subalternative Route E would be located further from the Desert Oasis Apartment Complex (the most sensitive noise receptor) than the proposed project; thus, their potential contribution to noise and vibration impacts would be less and they would contribute incrementally less to the cumulative noise and vibration impacts at the most sensitive noise receptor.

Because of their distance from the noise receptors, the Mountain Pass and Golf Course Telecommunication Alternatives would not contribute to cumulative noise or vibration impacts to noise receptors in this analysis.

5.3.9.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP and ISEGS. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

According to the CEC's and BLM's ISEGS ~~FSA/DEIS~~ cumulative analysis, the First Solar Photovoltaic Project is the only one of the reasonably foreseeable future projects in the vicinity that would be located close enough to the ISEGS project to potentially contribute to cumulative noise impacts. Noise generated during construction of the ISEGS project could reach 50 to 55 dBA L_{eq} at the Primm Valley Golf Course, but such levels would not likely be annoying to golfers. Noise from the First Solar Photovoltaic Project could combine with noise generated by the ISEGS project; however, because doubling the distance from a noise source reduces the sound pressure level by 6 dB, noise from construction of the First Solar Photovoltaic Project would be expected to be roughly 6 dB quieter at the golf course than noise from ISEGS. Combined construction noise from the two projects would thus reach levels of 51 to 56 dB at the golf course, an unnoticeable increase over noise from one project alone. Noise impacts of the ISEGS project would thus not combine with impacts of past, present, and reasonably foreseeable projects to result in a significant

contribution to local or regional cumulative impacts related to noise (CEC and BLM 2009, CEC 2010a, and BLM 2010).

Cumulative Analysis of the Whole of the Action / Cumulative Action

The EITP and ISEGS are likely to be constructed concurrently and would increase noise levels at the closest noise receptor, the Primm Valley Golf Course. As discussed above, the estimated cumulative noise level at this receptor from these projects and the other foreseeable project in the noise cumulative impact area would range from 57 to 59 dBA. This level does not exceed San Bernardino County's allowable noise level of 60 dBA for other commercial purposes. Therefore, the cumulative impacts would not be significant.

Due to distance, the Whole of the Action / Cumulative Action would not result in detectable levels of vibration at the Primm Valley Golf Course; therefore, there would be no cumulative impact due to vibration.

5.3.10 Public Services and Utilities

5.3.10.1 Geographic Extent and Timeframe

Public services and utilities impacts from the EITP are limited to the area from which the Ivanpah and Eldorado valleys draw public services and utilities; therefore, the geographic area analyzed for cumulative public services and utilities impacts comprises the public services and utilities systems that service the Ivanpah and Eldorado valleys. The timeframe for the cumulative analysis is the period of operation of the transmission line because operational water usage would occur during the entire time period of operations.

5.3.10.2 Past and Present Project Impacts/Existing Cumulative Conditions

Much of the EITP route is characterized by sparsely populated open space and agricultural land, with the exception of Primm, Nevada. Primm is urbanized with multiple casinos and other services; however, its permanent population is approximately 1,000 (www.primmnevada.net). Primm has over 2,500 hotel rooms and has the infrastructure and services to accommodate many more people than its permanent population.

Within the Ivanpah Valley in California, most services and utilities are currently provided by San Bernardino County from either Barstow or Baker (see Section 3.11.1, "Environmental Setting"). Water is provided by local wells. In Nevada, services are provided from Las Vegas, Boulder City, Searchlight, and Jean. Most wastewater is discharged and treated through septic systems, but Primm has a wastewater treatment plant.

Solid waste generated in this area of California would go to either the Barstow Sanitary Landfill or the Victorville Sanitary Landfill. The Barstow Sanitary Landfill, located approximately 110 miles southwest of the proposed Ivanpah Substation, can accept up to 600 tons of solid waste per day. Although the current facility is nearing capacity, the recently approved Barstow Sanitary Landfill Expansion Project would expand the landfill by 284 acres (San Bernardino County 2009a, 2009c). According to the CEQA Findings and Final EIR for that project, the landfill will be increased in size according to the actual inflow rate during expansion (San Bernardino County 2009a); however, if the landfill is not expanded in time to accept wastes generated by the EITP, the Victorville Sanitary Landfill is the next closest landfill in California. It is approximately 140 miles southwest of the proposed Ivanpah Substation. The Victorville Sanitary Landfill accepted approximately 980 tons of wastes per day in 2006 and 890 tons of wastes per day in 2007. It is permitted to accept up to 3,000 tons of wastes per day and is not nearing capacity (CIWMB 2009).Therefore, the local California landfills have capacity to accept additional solid waste.

5.3.10.3 Reasonably Foreseeable Future Projects

This area is likely to experience considerable changes in the reasonably foreseeable future. Multiple large-scale renewable energy projects are proposed (Tables 5-1 and 5-2). This could include as many as six solar projects

(ISEGS, First Solar, ~~NextLight~~ Silver State, Bull Frog Green Energy, Power Partners Solar, and Cogentrix) and ~~four~~ three wind projects (~~Table Mountain,~~ Iberdola Renewables, Oak Creek Energy Systems, and Searchlight Wind). In addition, the construction of the SNSA, DesertXpress, TransWest Express Transmission Project, and the Calnev Pipeline Expansion would require hundreds to thousands of workers. Depending on the timing of each construction project, services could be strained during the construction period. Table 5-3 lists projected overlap in construction schedules. The construction of the SNSA would not overlap with the construction of the EITP; but many of the others projects could, such as DesertXpress and ISEGS. There are no known reasonably foreseeable future projects that would increase the amount of housing in Primm. When and if the reasonably foreseeable future projects become operational, some would have permanent staff, but the number of employees would be considerably fewer than during construction (see Section 3.13, "Socioeconomics, Population and Housing, and Environmental Justice").

5.3.10.4 Cumulative Impact Analysis

The potential for the public services and utilities impacts of the EITP to combine with the effects of other projects within the geographic extent and timeframe of the cumulative analysis is described below.

There would be no impacts related to the following CEQA considerations:

- Requiring new or physically altered public facilities;
- Exceeding wastewater requirements of the RWQCB;
- Exceeding wastewater requirements of existing treatment facilities; or
- Requiring or resulting in the construction of new stormwater drainage facilities.

Therefore, these criteria are not discussed in the cumulative impact analysis below.

Public services and utilities impacts from the EITP would occur primarily during the construction phase, so the cumulative impact analysis is limited primarily to that phase. During operation, the EITP's impacts to public services and utilities would affect water usage; therefore, for this criterion, the cumulative impact analysis considers the potential for cumulative impacts over the life of the project.

Emergency Response Services

This section discusses the combined effects on emergency services of the EITP and past, present, and reasonably foreseeable projects. The relevant impact of the EITP is IMPACT PUSVC-1: Emergency Services Needed in Response to an Accident or Other Emergency Incident.

With respect to the EITP, the applicant would minimize the potential for workplace accidents and fires by operating under a Site Safety Plan (MM HAZ-3) and implementing a Fire Management Plan (APM HAZ-4). In addition, the applicant would implement a Hazardous Materials Management Program (APM HAZ-2) that would use emergency response procedures to address potential releases. This would minimize the need to use local emergency medical or fire services. The need for police services would be minimized by security design features described in Section 3.11, "Public Services," to prevent potential vandalism during construction and operations. These features would include patrolling sites and fencing facilities, among other measures.

Concurrent construction of multiple reasonably foreseeable future construction projects, such as ISEGS and DesertXpress, could increase demands on emergency services, but each project would likely take steps to minimize its demand on these services. However, these projects would also use safe work practices and implement plans to prevent spills, fires, and other emergency situations to minimize the demand on emergency services. Therefore, concurrent construction of multiple projects would not likely create a significant cumulative impact on emergency services, and there would not be a considerable cumulative impact.

~~**Cumulative Impact PUSVC-C-1:**~~

Water Use

This section discusses the combined effects of water use of the EITP and past, present, and reasonably foreseeable projects. The relevant impact of the EITP is IMPACT PUSVC-2: Project Construction Temporarily Increases Water Use, and Project Operation Contributes to Increased Long-term Water Consumption. During construction of the EITP, between 32,000 and 40,000 gallons of water could be used per day. ~~The applicant estimates that between 30.6 and 38.3 acre feet per annum of water would be used during construction. The source of this water is currently unknown, but the applicant has stated that they would not drill any wells. MM W-2 (Water Use Plan) would require the applicant to develop and implement a Water Use Plan that specifies all water sources and the upper limit of water usage.~~ The applicant estimates that between 30.6 and 38.3 acre feet per annum of water would be used during construction. The source of this water would be the Molycorp Mine Mountain Pass. MM W-2 (Water Use Maximum) sets maximum water use limits for the construction and operation phases of the proposed project. By limiting the maximum water use, construction of the proposed project would result in less than significant impacts. The DesertXpress DEIS did not discuss their source of water during construction, but concluded that the rail lines would not require the use of water (USDOT 2009). ISEGS would draw water from one of two wells that its applicant would install near the facility. ISEGS estimated that it would use no more than 100 acre feet per annum during operations, and it would be required to monitor its potential impact on groundwater levels (~~CEC 2010~~ CEC 2010Aand BLM ~~2009~~ 2010). Given that multiple reasonably foreseeable future construction projects in the area could occur concurrently with the EITP, there could be a cumulatively significant impact on local water use, depending on the water sources. ~~At this time, there is insufficient data available to calculate the cumulative water usage of the all the reasonably foreseeable future projects; therefore, the EITP's contribution to the cumulative impact cannot be estimated. Mitigation is necessary to decrease the potential cumulative impact. Implementation of MM PUSVC-C-1 will require the applicant to demonstrate that the supplier of the water to be used for the EITP has an adequate supply such that there will be no adverse impacts on local public and private water supplies.~~ However, because the EITP has determined their water source and would be implementing MM W-2, the EITP contribution to the cumulative impact would not be significant.

~~**MM PUSVC-C-1.** This mitigation measure will require the applicant to demonstrate to the BLM and CPUC that the supplier of the water to be used for the EITP has an adequate supply such that the existing local public and private water usages are not altered. Implementation of this mitigation measure would reduce the EITP's incremental contribution to less than significant or to minor.~~

Solid Waste

This section discusses the combined effects on solid waste generation of the EITP and past, present, and reasonably foreseeable future projects. The relevant impacts of the EITP are IMPACT PUSVC-3: Solid Waste Generated During Construction of the Project Exceeds Landfill Requirements and IMPACT PUSVC-4: Solid Waste Generated During Construction of the Project Results in Noncompliance with Federal, State, or Local Statutes, Regulations, or Policies. Solid waste generated by construction of the EITP would include the removed power line towers and poles; removed conductor cable; removed overhead ground wires; substation construction waste; and excess materials. During construction, the applicant has estimated that a total of 540 tons of waste would be created, of which approximately 400 tons (74 percent) would be salvaged or recycled and approximately 140 tons (26 percent) would be disposed of in landfills; therefore, the applicant would be on track to meet solid waste management requirements in both California and Nevada. Existing solid waste facilities have adequate capacity to accommodate project-related solid wastes. With the implementation of MM PUSVC-1: Construction Waste Disposal Plan, potential impacts on landfills would be less than significant.

ISEGS would generate approximately 280 tons of solid waste over the four-year construction period that would be either recycled or disposed of in a Class III landfill. ISEGS would implement a similar Construction Waste Disposal Plan. First Solar and the other proposed solar projects would be anticipated to generate similar volumes of solid waste that would go to local landfills (CEC ~~and BLM 2009~~ 2010). The other reasonably foreseeable future renewable

energy projects would be expected to dispose of solid waste in the same landfills as the EITP. Construction of the DesertXpress High-Speed Rail is anticipated to generate negligible quantities of waste (USDOT 2009).

All of the reasonably foreseeable future projects would contribute solid waste to landfills in either California or Nevada. However, state and local regulations and plans require recycling to varying degrees. Therefore, the total solid waste from each project that goes to a landfill would be reduced. Although the EITP and other reasonably foreseeable future projects would use local landfills, the landfills appear to have the capacity to accept more waste than they are currently accepting. There would not be a significant cumulative impact on the capacity of local landfills as long as all of the projects adhered to local policies and regulations related to recycling. There would not be a considerable cumulative impact to either the Barstow and Victorville Sanitary Landfills because once Barstow facility is expanded both landfills will have sufficient capacity for many years.

5.3.10.5 Alternatives

The No Project Alternative involves no activity; therefore, no use of public services or utilities would be needed and there would be no contribution to cumulative impacts.

The alternative transmission line routes and the telecommunication alternatives simply vary the route of the proposed project. All of the same components would be built. Use of public services and utilities for all of these alternatives would be similar to use for the proposed project. Therefore, these alternatives would have the same contribution to cumulative impacts as would the proposed project.

5.3.10.6 Whole of the Action/Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP project and ISEGS. The section first summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

Summary

The ISEGS FSA/DEIS and FEIS cumulative ~~analysis~~ analyses evaluated potential impacts on fire and emergency service capabilities in San Bernardino County, California, and Clark County, Nevada, during construction and operation of the EITP in conjunction with potential emergency service requirements of other existing and future projects. The limited fire risks and potential for hazardous materials incidents at the ISEGS site during construction and operation would not be expected to pose significant added demands on local fire protection services (CEC and BLM 2009). ~~Therefore, the EITP would not contribute to a considerable cumulative impact on existing local fire protection services~~ BLM obtained additional information after the DEIS was published that indicated that ISEGS would not have an adverse effect on San Bernardino County fire, hazardous materials, and emergency response services (BLM 2010). However, the San Bernardino County Fire Department stated in public comments that they disagreed with this assertion, and they would do their own financial evaluation. No additional information was provided by San Bernardino County, so BLM concluded that ISEGS would not contribute an adverse cumulative impact on local fire protection services (BLM 2010).

The ISEGS project would generate nonhazardous solid waste that would add to the total waste generated in San Bernardino County and Clark County. Although wastes would be generated in modest quantities, waste recycling would be employed wherever practical, and sufficient capacity is available at several treatment and disposal facilities to handle the volumes of wastes that would be generated. Most of the other projects identified are of similar or smaller scale than ISEGS and would therefore be expected to generate a similar or smaller volume of nonhazardous waste.

The FSA/DEIS ~~concludes~~ and the FEIS concluded that the total amount of available solid waste landfill capacity in the ISEGS project vicinity is more than sufficient to accept waste from multiple projects even if all of the cumulative projects were constructed. Therefore, waste generated by the ISEGS project would not result in significant cumulative impacts associated with nonhazardous solid waste~~.~~ (CEC and BLM 2009, ~~CEC 2010~~ CEC 2010Aa, and BLM 2010).

Cumulative Analysis of the Whole of the Action/Cumulative Action

With respect to emergency services, both during construction and operations EITP and the ISEGS project measures would be implemented to minimize potential use of emergency services, similar to other foreseeable projects, such as the Calnev Pipeline Expansion or DesertXpress, through use of safe work practices and plans to prevent spills, fires, and other emergency situations and minimize the demand on emergency services. Therefore, it would be unlikely that Whole of the Action / Cumulative Action impacts combined with impacts from other reasonably foreseeable future projects would create a significant cumulative impact on emergency services. Therefore, there would not be a considerable cumulative impact.

As discussed above, both EITP and ISEGS would require water during construction and operations. EITP would need a maximum of 38.3 acre feet per annum during its construction. During operations, it would need a minimal amount of water. ~~Mitigation measures would require ISEGS to limit its water usage to 100 acre feet per annum for construction and operations.~~ ISEGS would use 100 acre feet per annum during operations. During construction, its water use would vary between 111 acre feet per annum to 217 acre feet per annum depending on the phase. ISEGS would draw its water from two local wells. The storage capacity of the groundwater basin on the California side of the Ivanpah Valley is estimated to be 3.09 million acre feet (~~CEC 2010~~ CEC 2010Aand BLM ~~2009~~ 2010). Given that 1) multiple projects are proposed to be built in the area that would all need a local water source, 2) that there are existing wells using the same water sources, and 3) that the area is a desert with low precipitation, there could be a considerable cumulative impact on local water supplies. ~~Until the source of water for EITP construction is known, it is not possible to estimate the exact contribution of the Whole of the Action / Cumulative Action to cumulative impacts; therefore, it is potentially significant. As discussed in CUMULATIVE IMPACT PUSVC-C-1: Water Use, MM PUSVC-C-1 would be implemented to ensure that the applicant's water use would have no adverse impacts on local public and private water supplies.~~ EITP would use water from the MolyCorp Mine Mountain Pass Facility and limit its water consumption (MM W-2). ISEGS would limit its consumption during operation to 100AFA and would use up to 217 AFY during construction, so the contribution of the Whole of the Action / Cumulative Action to cumulative impacts would be less than significant.

EITP and the ISEGS project combined with the other foreseeable projects would dispose of solid waste in local landfills; however, significant cumulative impacts to landfill capacity would be unlikely. All projects would have to comply with local recycling policies and regulations, and the local landfills appear to have adequate capacity to accommodate the anticipated solid waste. Therefore, there would be no significant cumulative impacts to landfill capacity.

5.3.11 Recreation

5.3.11.1 Geographic Extent and Timeframe

Recreational impacts caused by the EITP would be limited to the recreational areas crossed by the EITP; the Ivanpah Dry Lake Recreation Area and Jean/Roach Dry Lake SRMA; therefore, the geographic area analyzed for cumulative recreational impacts is the Ivanpah Valley within the timeframe of construction.

5.3.11.2 Past and Present Project Impacts

The past and present projects have created opportunities for indoor and outdoors recreation throughout the region. Over the last 20 years, the Ivanpah Valley has experienced minor development with projects like the Bighorn Electric Generating Station, the Buffalo Bills Hotel and Casino, and several fast food establishments near the California-Nevada

border at Primm, Nevada. Additionally, Primm has experienced several linear energy projects, including the Kern River Pipeline Expansion Project, upgrades to I-15, and fiber-optic telecommunication line projects. In addition, recreation areas and facilities have been established including the Jean/Roach Dry Lake SRMA, the Ivanpah Dry Lake Recreation Area, and the Prim Valley Golf Club.

The expansion of the I-15 corridor and the construction of the Buffalo Bills Hotel and Casino have resulted in beneficial impacts on recreation in the Ivanpah and Eldorado valleys. For example, the I-15 corridor expansion has allowed greater accessibility by a greater number of people to the recreational areas and facilities, and the Buffalo Bills Hotel and Casino has allowed for the extended enjoyment of recreational areas and facilities by providing lodging for recreationists to stay for multiple days. Of the projects described in the previous paragraph, none has had a negative effect on recreation in the Ivanpah and Eldorado Valleys.

The Ivanpah Dry Lake Recreation Area is managed by the BLM and is popular for land sailing and kite buggying (PrimmNevada.net 2010) but is closed to motorized vehicles. Free permits are required to access the site for recreation, and commercial or organized events require special recreation permits (BLM 2010). The Ivanpah Desert Wildlife Management Area (DWMA), an overlay to Ivanpah Dry Lake, is south of the EITP and east of I-15. Some areas allow camping, but land sailing is not permitted in the southern half of the dry lake, which is primarily used for very low-level, widely dispersed motorized recreational activities (BLM 2002).

The Jean/Roach Dry Lake SRMA is illustrated in Figure 5-1. It provides opportunities for recreation, including motorcycling, OHV and 4 x 4 driving, horseback riding, mountain biking, small-game hunting, and organized racing events (BLM 2007).

5.3.11.3 Reasonably Foreseeable Future Projects

Reasonably foreseeable projects that might contribute to cumulative impacts to recreation areas crossed by EITP are those that might be constructed simultaneously or that would temporarily limit or restrict access to a recreational area sequentially. A specific foreseeable project that meets these criteria is the NextLight Silver State Solar Project.

5.3.11.4 Cumulative Impact Analysis

The potential for cumulative impacts on recreation from the EITP and other projects within the geographic extent and timeframe of the cumulative analysis is described below. As discussed in Section 3.12.3, "Impact Analysis," construction of the EITP would result in minor, short-term, and adverse impacts on recreation resources. The EITP would not result in demand for new or expanded recreation facilities within the cumulative impact area nor would the EITP result in increased use of existing recreation facilities that would substantially degrade the facility; therefore, impacts under the CEQA recreation criteria are not discussed in the cumulative impact analysis.

Cumulative Impact REC-C-1: Restricting Access to Areas within the Jean/Roach Dry Lake SRMA

The EITP would cross the Jean/Roach Dry Lake SRMA between MP 7 and MP 28.5. Construction of the transmission line would temporarily restrict access to several trail segments. As part of the project (APM REC-1), the applicant would coordinate closures of recreational facilities with the facility owners and would schedule construction to avoid heavy use periods. MM REC-1 requires the applicant to locate extra workspace areas outside of the Ivanpah Dry Lake Recreation Area and Jean/Roach Dry Lake SRMA, which would further minimize the temporary disturbance on recreation in the vicinity of the dry lakes.

The Nextlight Silver State Solar Project would be located entirely within the boundary of the Jean/Roach Dry Lake SRMA and would be constructed on two sections of a competitive OHV racing trail. If the EITP and NextLight Silver State Solar Project had overlapping construction schedules, there could be a considerable short-term cumulative impact to the Jean/Roach Dry Lake SRMA because each would temporarily restrict access to trails. Based on the

assumption that there would be overlapping construction schedules and the duration of construction in the Jean/Roach Dry Lake SRMA and the area of the Jean/Roach Dry Lake SRMA crossed by the EITP, the project would have a minor short-term contribution or less than significant contribution with mitigation to cumulative impacts on recreation in the Jean/Roach Dry Lake SRMA.

5.3.11.5 Alternatives

There would be no contribution to cumulative impacts to recreation as a result of the proposed transmission and telecommunication alternatives.

5.3.11.6 Whole of the Action/Cumulative Action

~~This section analyzes the cumulative impacts of the combined EITP and ISEGS project to recreation. The section first summarizes recreation cumulative analysis from ISEGS FSA/DEIS prepared by the CEC and the BLM, followed by a discussion of the cumulative impacts of the Whole of the Action / Cumulative Action with respect to recreation areas.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~According to the ISEGS FSA/DEIS,~~ ISEGS would contribute incrementally to the long-term reduction of outdoor recreation quality available in the Ivanpah Valley area of the California Desert due to the cumulative effects of development leading to a transformation from a natural setting to a more industrial setting. The adverse effect of development on recreational resources within the Ivanpah Valley area may become pronounced due to the proximity of the area to Las Vegas, ease of public access from I-15, increasing tourist use of the Primm area, and other planned development projects including the First Solar Photovoltaic Project, the DesertXpress High-Speed Rail Project, and the SNSA. Therefore, ISEGS would contribute to diminishing the quality of outdoor recreation experiences in the Ivanpah Valley area; however, even when considered with other existing and foreseeable projects, ISEGS would not contribute to a considerable cumulative impact on recreation in the Ivanpah Valley and surrounding area (CEC and BLM 2009 and BLM 2010).

With respect to recreational use of Ivanpah Dry Lake, the ISEGS project would cause a slight overall average decrease in ground-level wind speeds and a slight increase in ground-level wind turbulence. This would not be a significant adverse cumulative impact to land sailing on Ivanpah Dry Lake (CEC and BLM 2009 and BLM 2010).

The combination of ISEGS and other reasonably foreseeable projects, including SNSA, would result in the elimination of approximately 43,000 acres of recreational lands. This cumulative loss would place pressure on other Mojave Desert lands that are not currently used for recreation. As a result there would be a direct and indirect adverse cumulative effects to recreation (BLM 2010).

Cumulative Analysis of the Whole of the Action/Cumulative Action

Approval of the ISEGS project would directly remove approximately ~~3,712 acres~~ 3,564 acres from potential use for recreational opportunities such as camping, hiking, hunting, and wildlife viewing. This acreage is approximately ~~10%~~ 7% of the land available for recreation within the Ivanpah Valley. However, it is unlikely that this area is used for recreation (CEC and BLM 2009). The EITP would remove only 38.5 acres (Ivanpah Substation and the communications site) from land available for recreation, because much of the EITP would be in existing ROWs.

Since ISEGS would not be located on or directly adjacent to any existing recreational facility, and therefore would not have a direct impact on recreational resources, the cumulative effect of the Whole of the Action / Cumulative Action

would be the same or similar to the EITP, which would be temporarily restricting access to areas of the Jean/Roach Dry Lake SRMA during project construction.

The EITP, ISEGS and other reasonably foreseeable projects would result in the elimination of recreational lands. This cumulative loss would result in the use of other Mojave Desert lands that are not currently used for recreation. As a result, there could be direct and indirect adverse cumulative effects to recreation. However, the contribution of EITP and ISEGS would only be 8.7% of the total 43,000 acres that BLM has estimated would be the loss of recreational lands.

5.3.12 Socioeconomics

5.3.12.1 Geographic Extent and Timeframe

The socioeconomic impacts of the EITP would be limited to the local and regional economy within the Eldorado and Ivanpah valleys and the local communities within that region; therefore, the geographic area analyzed for cumulative socioeconomic impacts was selected to encompass potential impacts on the local and regional economy and on the local population within the Eldorado and Ivanpah valleys. Since the EITP comprises the replacement of an existing transmission line, the occurrence of potential economic impacts would be limited to the period of construction. The 18-month construction phase has therefore been used as the timeframe for this cumulative analysis.

5.3.12.2 Past and Present Project Impacts/Existing Cumulative Conditions

Section 3.13.1, "Environmental Setting," describes existing socioeconomic conditions within the cumulative study area, including demographics, housing, and workforce characteristics. Socioeconomic conditions in the Ivanpah Valley have been historically influenced by the construction and operation of the three local casinos and outlet mall in Primm, which have affected demand for and supply of jobs as well as housing demand, business revenues, and property values. Local demand for housing and workforce has historically reflected the area's prevailing level of development and growth.

As stated in Section 3.13, "Socioeconomics, Population and Housing, and Environmental Justice," both Clark County and San Bernardino County have been affected by the recent economic downturn in the last two to three years, with unemployment increasing and housing development and population growth decreasing. Employment and population growth have been trending downwards within the region since 2008. As of September 2009, unemployment in San Bernardino and Clark counties was over 13 percent, with approximately 261,000 people out of work.

5.3.12.3 Reasonably Foreseeable Future Projects

Construction and operation of the EITP in conjunction with ISEGS, First Solar, NextLight Silver State Solar, SNSA, Bull Frog Green Energy, Power Partners Solar, Cogentrix, DesertXpress, Calnev Pipeline Expansion, ~~Table Mountain Wind,~~ Iberdola Renewables, OakCreek Energy Systems, and Seachlight Wind would increase the use of local businesses and hotels and could increase business and tax revenues within the Ivanpah and Eldorado valleys. However, the largest cumulative positive effects would be limited to those reasonably foreseeable future projects that would be constructed currently with the EITP—DesertXpress and ISEGS.

5.3.12.4 Cumulative Impact Analysis

The potential for socioeconomic and environmental justice impacts of the EITP to combine with the impacts of other projects within the geographic extent and timeframe of the cumulative analysis is described below. The incremental contribution of the EITP combined with similar effects of other projects would make up the overall cumulative impacts on socioeconomic resources.

Under CEQA, the proposed project was determined to have no impact on the following criteria and, therefore, it could not contribute to cumulative impacts on these criteria:

- Inducing population growth
- Increasing demand for permanent and temporary housing
- Displacing existing residences

Therefore, impacts associated with these criteria are not discussed in this cumulative analysis.

Local Economy, Labor Force, and Tourism

During construction of the EITP, local spending would increase within the Ivanpah Valley and, to a lesser degree, in the Eldorado Valley. This would benefit the local and regional economy through expenditures on goods and services. The EITP would provide approximately 34 local jobs and tax revenue to local communities. Approximately 156 out-of-town construction workers would be employed in the area for 12 to 18 months (~~PEA~~ SCE 2009). Operation and maintenance of the project would not provide any new, local jobs. Project materials and equipment would be sourced locally or regionally wherever possible, which would also benefit the local economy.

While all of the projects considered in the cumulative impacts analysis would be expected to have some influence on socioeconomic resources, within the Ivanpah Valley, a number of major construction projects are planned which would be expected to have particular influence on socioeconomic conditions. These include three linear construction projects (the Calnev Pipeline, the DesertXpress High-Speed Rail, and the AT&T Fiber Optic Replacement), as well numerous solar and wind projects. Many of the foreseeable projects would require hundreds to thousands of laborers during construction but would have a smaller labor force for operations (see Table 5-3).

While other reasonably foreseeable future projects would likely draw on the unemployed construction workforce, they could also attract workers from other regions. Local construction workers on the EITP or any of the other foreseeable projects would receive additional income for the duration of their employment, some of all of which would likely be spent in the local area. Non-local construction crews would use local accommodations for lodging, which would have a nominal beneficial impact on tourism in the area. The reasonably foreseeable future projects would also draw on locally procured materials, goods, and services, and some regional suppliers could also benefit by these purchases. As it is anticipated that additional clean energy projects would be proposed and permitted over time, in order to meet California's renewable portfolio standard mandates, regional suppliers of clean energy technology and equipment would likely benefit from implementation of clean energy infrastructure and development. These benefits would reflect the timing of construction and operation of all the permitted facilities, as well as project-specific requirements and therefore cannot be predicted at this time.

The concurrent construction of the reasonably foreseeable future projects would result in a beneficial cumulative impact on the local and regional economy and tourism and could decrease unemployment during periods of construction. As the construction schedule and worker requirements of many of the reasonably foreseeable future projects are not currently known, it is not possible to determine the quantity or duration of any potential net change in local and/or regional employment The EITP would be constructed by a specialized crew made up primarily of workers relocating from outside the region; of the 190 people anticipated to be employed during construction, approximately 34 would be hired locally. Due to the relatively short length of time of construction (18 months) and the small number of people who would be employed compared with the unemployment rate in the region, the EITP's contribution to the cumulative impact on the economy and employment would be negligible.

Environmental Justice

Most of the proposed EITP transmission line corridor follows existing ROWs and crosses undeveloped areas with dispersed and sparse populations. Three census tracts in the vicinity of the EITP corridor comprise low-income populations more than double county averages (see Table 3.13-9). Potential cumulative impacts identified in this analysis

that could disproportionately affect these communities, resulting in a cumulative environmental justice impact, include impacts to air quality, recreation, water supply, and traffic.

The other linear projects (the AT&T Fiber Optic Replacement, the Calnev Pipeline Expansion, and the DesertXpress High-Speed Rail Project) would also have impacts similar to those of the EITP in that there would be increased levels of dust and traffic. Aside from the NextLight Silver State Solar Project, the proposed renewable energy projects in the Ivanpah and Eldorado valleys would be built in remote areas that are sparsely populated. The NextLight Silver State Solar Project would be built within 1 mile of Primm. These projects, in conjunction with the EITP, would result in cumulative impacts to air, noise, public services, and traffic that may effect low-income populations in Primm, Nevada. However, these impacts would not disproportionately affect these communities, as described below, and therefore would not result in a cumulative environmental justice impact.

Residents along the EITP route may be exposed to short-term increases in criteria pollutant emissions. The estimated construction time at any one location for the EITP is 2.5 weeks which could potentially overlap with construction of other cumulative projects in the cumulative study area. Although possible, it is unlikely that the Calnev Pipeline Expansion and DesertXpress would have overlapping construction schedules within the immediate vicinity of receptors along the route. Given that construction activities would be transient in the area of potential exposure, there would not be a significant cumulative impact. Similarly, because of the relatively short duration of construction and the unlikelihood of overlapping construction schedules within the vicinity of receptors along the routes, the EITP's contribution to cumulative impacts due to objectionable odors would be negligible. Because cumulative impacts to air quality would be negligible and not significant for the entirety of the route, low-income populations along the route would not be disproportionately affected by cumulative impacts to air quality.

The EITP would also contribute to cumulative impacts to recreation, specifically temporarily restricting access to the Jean/Roach Dry Lake SRMA and Ivanpah Dry Lake Recreation Area. Cumulative impacts to recreation by restricting access, particularly to planned recreation events on the dry lakes, could impact residents of low-income communities in the area; however, these events attract visitors from beyond the local community, and therefore, this cumulative impact would not disproportionately affect low-income groups.

The cumulative analysis identified a potentially significant cumulative impact to local water supplies (Section 5.3.10.4), which could disproportionately impact low-income communities in the vicinity of the EITP. However, MM PUSVC-C-1 will require the applicant to demonstrate that the supplier of the water to be used for the EITP has an adequate supply such that there will be no adverse impacts on local public and private water supplies. Therefore, this would not result in a cumulative environmental justice impact.

Similar to cumulative recreation impacts, cumulative impacts to traffic would not disproportionately affect low-income populations along the route because the transportation routes that would be impacted by the project and the cumulative projects are used by a much broader population than the local community. These cumulative impacts to traffic would uniformly affect all travelers on I-15, which is used largely for travel between the Los Angeles area and Las Vegas, Nevada.

5.3.12.5 Alternatives

The No Project Alternative would not contribute to any cumulative impacts on the local economy, labor force, tourism, or minority/low-income populations.

Because Alternative Transmission Routes A, B, C, and D, Subalternative Route E, and the telecommunication alternatives (both Golf Course and Mountain Pass) only vary the route of the EITP, they would contribute to cumulative socioeconomic impacts to a degree similar to that of the proposed project. That is, they would have a negligible contribution to the cumulative beneficial impacts to the local and regional economies, tourism, and employment.

5.3.12.6 Whole of the Action / Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP and ISEGS projects and presents a summary of the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM and evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~According to the ISEGS FSA/DEIS, ISEGS would not result in any cumulative socioeconomic impacts. ISEGS requires relatively few construction workers relative to the amount of available workers for both construction and operation and so would not contribute to cumulative socioeconomic impacts resulting from an influx of non-local workers (CEC and BLM 2009).~~

According to the CEC's analysis, cumulative socioeconomics impacts could occur if overlapping construction schedules of the reasonably foreseeable projects could create a demand for workers that cannot be met by the local labor force, resulting in an influx of non-local workers and their dependents. However, CEC found that despite the potential for construction schedule overlaps, there is no evidence that ISEGS' demand for workers will result in adverse cumulative socioeconomic effects because a large, skilled workforce in the study area is available within commuting distance. Because ISEGS would not result in any project-specific adverse socioeconomic impacts, it would not cumulatively contribute or combine with any potential impacts related to the future renewable energy projects in the area (CEC 2010a). BLM also concludes that ISEGS would require such a small number of workers relative to the available workers for construction and operations that there would not be an adverse cumulative impact due to an influx of non-local workers (BLM 2010).

The long-term payment of taxes and fees and distribution of operations and maintenance and payroll dollars associated with the ISEGS project is expected to ~~have a significant~~ benefit to San Bernardino County, California, and Clark County, Nevada, by increasing the amount of public funds available to the counties. These benefits from ISEGS plus benefits of the revenues from other reasonably foreseeable projects would result in cumulative benefits (CEC and BLM 2009, CEC 2010a, and BLM 2010).

Cumulative Analysis of the Whole of the Action / Cumulative Action

Construction and operation of the Whole of the Action / Cumulative Action (the combined EITP and ISEGS) would result in a beneficial impact to the local economy, tourism, and employment that would be larger than benefits from either of the individual projects alone. ~~According to the ISEGS FSA/DEIS,~~ ISEGS would generate approximately $2.2 million per year from assessed property tax values. Its annual operational and maintenance budget would be $340,500 (CEC ~~and BLM 2009~~ 2010a). There would be a considerable beneficial cumulative impact on the local economy, tourism, and employment from the construction and operations of the Whole of the Action / Cumulative Action and other foreseeable projects. However, given the size of the economy and the level of employment locally, the contribution of the Whole of the Action / Cumulative Action would be negligible.

Similar to the EITP, the Whole of the Action / Cumulative Action and foreseeable projects are unlikely to result in significant disproportionately high adverse cumulative impacts to minority/low-income populations.

5.3.13 Transportation and Traffic

5.3.13.1 Geographic Extent and Timeframe

Traffic impacts of the EITP would be limited to the regional freeways and local roads that comprise the local transportation network during construction; therefore, the geographic area analyzed for cumulative traffic and transportation impacts is the road network within the Ivanpah and Eldorado valleys. The timeframe for this cumulative analysis is the construction period because the impact evaluation in Section 3.14, "Traffic and Transportation," determined that there were no impacts to ground traffic and transportation during operations. However, the EITP would require helicopter usage during operation and maintenance procedures. Therefore, the timeframe for the cumulative analysis for air traffic is the lifetime of the project.

5.3.13.2 Past and Present Project Impacts/Existing Cumulative Conditions

Except for the small community of Primm, Nevada, the EITP is located in a rural, sparsely populated area with a significant amount of publicly owned land. Past projects related to transportation and traffic within the Ivanpah and Eldorado valleys include I-15, State Route (SR) 164, SR 161, SR 604, and US-95. These projects have resulted in the current conditions. As discussed in Section 3.14, "Traffic and Transportation," the level of service (LOS) for these roads is adequate, except for I-15. On most days, I-15 experiences an average daily traffic volume of approximately 38,000 trips (LOS C), which means the flow of traffic has been determined to be stable; however, on Fridays from approximately noon to 10 p.m., traffic on northbound 1-15 increases to an hourly average of between 1,700 and 2,000 trips (LOS D; Green 2009).

5.3.13.3 Reasonably Foreseeable Future Projects

Ongoing and foreseeable development throughout the cumulative impact area for traffic and transportation is dominated by proposed renewable energy projects. As shown in Figure 5-1 and described in Tables 5-1 and 5-2, additional renewable energy development is expected in the area. The renewable projects that have the potential to affect traffic because of their proximity to Primm and I-15 and their potentially overlapping construction schedules would be ISEGS, FirstSolar, and Nextlight Silver State. Other projects in the vicinity of I-15 include the SNSA, the Calnev Pipeline Expansion, and the DesertXpress High-Speed Rail.

The start time for construction of the SNSA is not known because the project has been placed on hold indefinitely, but based on the current environmental review status, it ~~is~~ would not ~~likely to~~ begin construction ~~until~~ before 2014. The EITP would begin construction in 2011 and be completed during 2013; therefore, the SNSA is not considered in the analysis of ground traffic impacts. The projected construction schedule of the Calnev Pipeline Expansion and First Solar are unknown, but DesertXpress is projected to be constructed between 2010 and 2012. ISEGS is projected to be built between 2010 and 2013, while NextLight ~~Renewable Power~~ Silver State Solar Project is projected to be built from 2010 to 2014. These projects are considered in this analysis (see Table 5-3).

5.3.13.4 Cumulative Impact Analysis

The potential for traffic and transportation impacts of the EITP to combine with the effects of other projects within the geographic extent and timeframe of the cumulative analysis is described below.

Cumulative Impact TRANS-C-1: Traffic Load, Capacity, and Level of Service

This section discusses the combined effects on traffic load, capacity, and LOS standards of the EITP and past, present, and reasonably foreseeable projects. Relevant impacts of the EITP are IMPACT TRANS-1: Traffic Load and Capacity and IMPACT TRANS-2: Level of Service Standard and Lane Closures.

Most roads in the cumulative impact area are infrequently used and would not be adversely affected by a slight, temporary increase in road traffic; however, construction of the EITP would increase use of I-15 by a maximum of 200 vehicles. Northbound I-15 experiences periods of heavy use on Friday from approximately noon to 10 p.m. because of motorists traveling between the Las Vegas and Los Angeles areas.

The applicant would acquire encroachment permits (APM TRA-1) and implement a Traffic Management and Control Plan (APM TRA-2) to reduce impacts. The Traffic Management Plan would provide strategies to assure safe and effective passage of through-traffic along I-15 and SR 164/Nipton Road. In addition, the implementation of MM TRANS-1 would minimize potential impacts to I-15 by requiring the applicant to limit construction activities so that lane closures did not occur during peak usage times on Fridays from noon to 10 P.M.

The EITP, ISEGS, the First Solar Project, the NextLight Silver State Solar Project, the Calnev Pipeline Expansion Project, and the DesertXpress High-Speed Rail Project would be located near the I-15 corridor. It is likely that during certain periods, construction of these projects could have overlapping schedules (see Table 5-3). As would the EITP, the large construction projects would have to obtain encroachment permit to minimize impacts to I-15. ISEGS would implement a Traffic Control Plan that contains a Traffic Management Plan; however, it could not be determined if the DesertXpress would have a comparable plan. Calnev, First Solar, and ~~NextLight~~ Silver State would likely also implement Traffic Management Plans.

With concurrent construction of the projects mentioned above, the number of vehicles using I-15 would increase and would adversely impact traffic load and LOS on I-15 principally on Fridays from noon to 10 p.m. However, the exact number of vehicles to be added cannot be determined with the available information. The EITP would contribute a maximum of 200 vehicles over an 18-month period and would minimize impacts through use of a Traffic Management Plan; therefore, the contribution of the EITP's impact on traffic and transportation would be minor. However, the EITP's incremental effect could result in a considerable cumulative impact; therefore, mitigation would be necessary.

MM-C-TRANS-1: I-15 Use Limits. MM-C-TRANS-1 will require the applicant to limit the use of I-15 on Fridays from noon to 10 p.m. This will require using alternative routes or planning sufficiently such that vehicular use of I-15 would be limited to fewer than 15 vehicles every 15 minutes, resulting in a minor, short-term cumulative impact. Implementation of this mitigation measure would reduce the EITP's incremental contribution to less than significant or minor.

EITP construction would result in short-term adverse traffic impacts where vehicles and equipment would enter or leave construction yards and at crossing points along the transmission line route. Crossing points which are in and near Primm, were considered for this cumulative analysis. However, these effects, even when combined with the existing traffic in Primm and the reasonably foreseeable future projects that would be located in and near Primm (DesertXpress Rail Line, Calnev Pipeline Expansion, First Solar, and ~~NextLight~~ Silver State), are so localized and temporary that they would not measurably change the existing conditions; therefore, no cumulative impacts on ground traffic would occur.

Air Traffic

Helicopter use during maintenance procedures is common for linear projects. Calnev Pipeline requires helicopter use and other existing transmission lines may also use helicopters in the cumulative impact area. If the SNSA is constructed, use of helicopters during operations could contribute to a cumulative impact; however, given the infrequency of use, the EITP's contribution to this impact would be negligible. MM TRANS-2, which requires coordination with the FAA regarding a Helicopter Flight Plan and Safety Plan, would be sufficient to reduce impacts. In addition, it is reasonable to assume that any existing or future projects in the cumulative impact area that require the use of helicopters would similarly consult with the FAA.

Emergency Access

The EITP, in combination with the other projects mentioned above that are in close proximity to I-15 and would be constructed concurrently, would not interfere with emergency response activities. Emergency response providers near the cumulative study area would be notified in advance about the exact location of construction and road or route closure schedules. Like the EITP, the foreseeable projects would coordinate with local police and traffic engineers to plan appropriate access alternatives for temporary street closures and traffic disruption, if closures were required. Therefore, there would not be a considerable cumulative impact to emergency access.

5.3.13.5 Alternatives

Because no activity is associated with the No Project Alternative, it would not contribute to short-term or long-term adverse cumulative impacts on transportation and traffic.

Because construction vehicles would travel along the same traffic corridors to and from construction yards and the construction location for all alternatives, all would contribute to cumulative impacts on traffic load and LOS on Fridays. In addition, construction of some of the alternative routes would require construction crossing or along I-15. Both the Mountain Pass and Golf Course Telecommunication Alternatives cross I-15 and travel along it for part of their routes. Transmission Alternatives C and D near Primm also cross I-15. Any of the alternatives' incremental effects could result in a considerable cumulative impact; therefore, MM-C-TRANS-1 would be necessary regardless of the alternative selected.

Alternative transmission routes A, B, C, and D and Subalternative Route E and the Telecommunication Alternatives would have short-term, minor, adverse traffic impacts at construction yards and crossing points (MP 29) similar to those of the EITP because the same construction yards would be used for all alternatives. However, these effects, even when combined with the existing traffic in Primm and the reasonably foreseeable future projects that would be located in and near Primm (DesertXpress, Calnev Pipeline, First Solar, and ~~NextLight~~ Silver State), are so localized and temporary that they would not measurably change the existing conditions; therefore, no cumulative traffic impacts would likely occur.

Like the other alternatives, the Mountain Pass and Golf Course Telecommunication Alternatives would cause a direct, short-term, minor adverse traffic impact at construction yards and crossing points along the telecommunication line route.

5.3.13.6 Whole of the Action / Cumulative Action

~~This section analyzes the potential cumulative effects of the combined EITP and ISEGS project. The section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM and then evaluates the combined effects of the EITP and ISEGS.~~

This section summarizes the cumulative analysis presented in the ISEGS FSA/DEIS prepared by the CEC and the BLM, the CEC's Final Decision, and BLM's FEIS. It then evaluates the combined cumulative impacts of the EITP and the ISEGS project.

ISEGS Summary

~~According to the ISEGS FSA/DEIS, traffic and transportation impacts of the ISEGS project would not combine with impacts of any past, present, or reasonably foreseeable projects to result in cumulatively considerable impacts to local streets in the immediate vicinity of the ISEGS project site. However, traffic and transportation impacts of the ISEGS project would result in a considerable local and regional cumulative impact to northbound I-15, related primarily to motorists travelling to Las Vegas. Vehicle trips generated during construction and operation of the ISEGS project would contribute to an adverse direct and cumulative impact, which would be significant with respect to CEQA and NEPA, on northbound I-15 on Fridays between noon and 10 p.m. This impact would remain even with~~

~~implementation of mitigation limiting the amount of project-related traffic generated on area roadways on Friday afternoons (CEC and BLM 2009).~~

Traffic and transportation impacts of the ISEGS project would not combine with impacts of any past, present, or reasonably foreseeable projects to result in cumulatively considerable impacts to local streets in the immediate vicinity of the ISEGS project site with the assumption that both First Solar and ISEGS repair any damaged roadways. However, traffic and transportation impacts of the ISEGS project would result in a considerable local and regional cumulative impact to northbound I-15 a major roadway operating at Level of Service F, related primarily to motorists travelling to Las Vegas. Vehicle trips generated during construction and operation of the ISEGS project would contribute to an adverse direct and cumulative impact, which would be significant with respect to CEQA and NEPA, on northbound I-15 on Fridays between noon and 10 p.m. This impact would remain even with implementation of mitigation limiting the amount of project-related traffic generated on area roadways on Friday afternoons (CEC and BLM 2009, CEC 2010a, and BLM 2010).

Cumulative Analysis of the Whole of the Action / Cumulative Action

The EITP and ISEGS are likely to be constructed concurrently and would have similar impacts on traffic volumes on northbound I-15 on Fridays between noon and 10 p.m. These impacts could not be completely mitigated. Therefore, concurrent construction of any of the other foreseeable renewable energy projects with these projects would contribute to considerable cumulative impacts on traffic load/volume. The contribution of the combined projects would depend on the amount of time that construction overlapped. Like the EITP, the Whole of the Action / Cumulative Action contribution to impacts to traffic load and LOS could be significant, but implementation of MM-C-TRANS-1 and a similar mitigation proposed for ISEGS would reduce the cumulative effects and would reduce the Whole of the Action / Cumulative Action's contribution to cumulative effects to minor, short-term, less than significant impacts; however, the cumulative impact to traffic on Fridays could still be significant.

Similar to the analysis provided for the proposed project, a considerable cumulative impact to emergency access with respect to the Whole of the Action / Cumulative Action would not occur.

6. Other CEQA and NEPA Considerations

Additional topics associated with implementation of the Eldorado–Ivanpah Transmission Project (EITP or the proposed project) and its alternatives that must be considered under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) are discussed in this chapter. The following additional considerations are discussed: environmental impacts that cannot be mitigated to less than significant levels; irreversible and irretrievable commitment of resources; growth-inducing effects; and a summary of cumulative impacts. The Ivanpah Solar Electric Generating System (ISEGS) project is also discussed. While the EITP would not be a source of additional power, the Bureau of Land Management (BLM) and the California Public Utilities Commission (CPUC) have determined that because the EITP is intended to facilitate the transmission of power from ISEGS, power generation from ISEGS should be considered in this EIR/EIS (Figure 1-1).

6.1 Significant Unavoidable Adverse Impacts

The proposed project and its alternatives would result in significant unavoidable adverse impacts on biological resources and ~~potentially significant impacts~~ air quality~~, hydrology and water quality, and public services and utilities.~~ The proposed project would also result in major, adverse, and unavoidable impacts on aesthetics and visual resources for one of the eight Key Observation Points (KOPs) analysis; however, with mitigation this impact would be less than significant under CEQA.

Under NEPA, the proposed project would result in major, adverse and unavoidable impacts on aesthetics and visual resources for ~~one of the eight key observation points (KOPs) analyzed; with mitigation,~~ KOP 1, which shows views of the transmission corridor within the South McCullough Wilderness Area. With mitigation, however, the overall project impacts on aesthetics and visual resources would be less than significant under CEQA. Mitigation includes painting the Ivanpah Substation to blend with its surroundings, rock staining for areas that have been graded or disturbed near the Ivanpah Substation, and color treating the microwave dish both within the Ivanpah Substation and near the town of Nipton, California.

As discussed in Section 3.4, "Biological Resources," the proposed project would impact several special-status wildlife species and their habitat. ~~Mitigation~~As currently designed, construction, operations, and maintenance activities associated with the proposed project would have impacts on native vegetation, desert washes, local wildlife, and special-status plants and wildlife. Under NEPA, adverse, moderate impacts on vegetation communities, special status plant and wildlife species, and desert drainages would occur with implementation of the proposed project, including the proposed APMs. These impacts would be significant under CEQA. Incorporation of recommended mitigation measures would reduce impacts on these resources through avoidance and minimization. Specifically, MM BIO-1 through 18 would reduce impacts to minor, localized, and less than significant for all of the species and habitats discussed, except for desert tortoise. Impacts on desert tortoise and its habitat would be significant even after mitigation (IMPACT BIO-2).

As described in the analysis of IMPACT AIR-2, the estimates of average daily emissions of $PM_{2.5}$, PM_{10} and NO_X from project construction activities exceed The Mojave Desert Air Quality Management District (MDAQMD) daily significant thresholds. Implementation of MM AIR-1 (low-emission equipment) and MM AIR-2 (enhanced fugitive dust control measures) would reduce potential impacts but are not expected to reduce emissions from construction activities to below the MDAQMD daily significant thresholds. Long-term impacts would not occur because construction would be temporary at any one location. Therefore, temporary ambient air quality impacts caused by construction activities would violate or contribute substantially to an air quality violation. This would be considered a significant unavoidable impact during construction.

In addition, construction of the proposed project or its alternatives would occur in an area designated non-attainment for ozone and PM_{10} (IMPACT AIR-3). The estimates of average daily emissions of PM_{10} and ozone precursors, NO_X and VOCs, from project construction activities exceed MDAQMD daily significant thresholds. ~~The construction~~Construction is expected to adversely impact the proposed project region for a short term. Mitigation measures to be implemented, including the use of low-emission equipment and enhanced fugitive dust control measures, are not expected to reduce PM_{10} and NO_X emissions from construction activities to below the MDAQMD daily significant thresholds. Therefore, temporary emission increases of NO_x, VOCs, and PM_{10} during construction would contribute to a cumulatively considerable net increase of a criteria pollutant in a non-attainment area. This would be considered a significant unavoidable impact during construction.

~~The proposed project and its alternatives could also result in a significant impact on water resources by impacting aquifer recharge processes and exceeding existing levels of groundwater withdrawal (IMPACT HYDRO-2). This potentially significant impact relates to IMPACT PUSVC-2, which indicates that construction of the proposed project would temporarily increase water use. Depending on the quantity and sources of water to be used, the proposed project could decrease local groundwater supply and recharge. Because the sources of the water to be used during construction is currently unknown, the impact on groundwater supplies could be significant (Section 3.8, "Hydrology and Water Quality" and Section 3.11, "Public Services and Utilities")~~

6.1.1 Ivanpah Solar Electric Generating System Project

~~The ISEGS project would result in significant unavoidable adverse impacts on existing scenic visual resources as seen from several key observation points in the Ivanpah Valley and Clark Mountains (CEC and BLM 2009, CEC 2010). ISEGS project impacts, when combine with the impacts of present and reasonably foreseeable projects, would also result in significant and unavoidable cumulative impacts with respect to visual resources, land use, and traffic and transportation (CEC 2010). These ISEGS project impacts are further reviewed in Section 3.2, "Visual Resources" and Chapter 5, "Cumulative Scenario and Impacts," of the EITP EIR/EIS.~~

The ISEGS project would result in significant and unavoidable adverse impacts on biological resources, land use, and visual resources. Impacts on biological resources would be significant and unavoidable even with the implementation of avoidance and minimization measures. These impacts include loss and disturbance of sensitive plant and wildlife species and the permanent conversion of approximately 3,564 acres of sensitive plant and wildlife habitat. Significant and unavoidable impacts on desert tortoise include the permanent loss of 3,564 acres of habitat and the translocation of up to 25 desert tortoises (BLM 2010 and CEC 2010).

The ISEGS project would contribute to significant and unavoidable adverse cumulative impacts to land use. The Mitigated Ivanpah 3 Alternative would result in the permanent conversion of 3,564 acres of undeveloped land. This represents a significant contribution to the anticipated 22,000 acres of undeveloped land in the Ivanpah Valley that would be developed should all the reasonably foreseeable future projects be constructed. This land is currently in use primarily as wildlife and vegetation habitat and for recreational uses. There is no feasible mitigation to lessen this cumulative impact on land use (BLM 2010 and CEC 2010).

The ISEGS project would result in significant and unavoidable adverse impacts on visual resources from the following vantage points: the Primm Valley Golf Course, middleground distance viewpoints on I-15, viewpoints in the Mojave National Preserve on the eastern face of Clark Mountain, and viewpoints in the Stateline Wilderness Area, including the Umberci Mine. Implementation of the ISEGS project would contribute to the industrialization of the Ivnapah Valley area, and there is no feasible mitigation to lessen this impact (BLM 2010 and CEC 2010). Additionally, the ISEGS heliostats would create substantial glare; with Conditions of Certification TRANS-3 and TRANS-4, glare would not result in a hazard. However, glare could interfere with views of the Clark Mountains from the Valley floor (CEC 2010).

6.1.2 Combined Impact of EITP and ISEGS

When considered together, the EITP and the ISEGS project would result in significant and unavoidable aggregate impacts on air quality, biological resources, land use, and visual resources. Long-term impacts on air quality would not result from the combined EITP and ISEGS project; however, because the EITP would result in significant and unavoidable adverse impacts on air quality due to temporary emission increases of NO_x, VOCs, and PM_{10}, which would contribute to a cumulatively considerable net increase of a criteria pollutant in a non-attainment area, and temporary impacts on ambient air quality, the whole of the action/cumulative action would result in significant and unavoidable impacts under these criteria.

The combined EITP and ISEGS project would also result in significant and unavoidable impacts on biological resources. The inclusion of ISEGS with EITP would result in an increase in the extent of the adverse impacts during construction to several sensitive plant species due to the high concentration of six of these species within the ISEGS construction footprint and the approximately additional 3,539 acres of desert habitat that would be impacted. Therefore, together ISEGS and EITP would result in significant impacts to small-flowered androstephium, Mojave milkweed, desert pincushion, nine-awed pappus grass, Parish's club cholla, and Rusby's desert-mallow.

Additionally, EITP and ISEGS together would result in significant and unavoidable impacts to desert tortoise and the permanent loss of desert tortoise critical habitat. The construction of the EITP was determined to result in significant impacts to desert tortoise due to the portions of the project that would result in permanent and temporary impacts to designated critical habitat. As each project individually was determined to result in significant impacts to desert tortoise even with implementation of recommended mitigation measures, the combination of the ISEGS and EITP would result in significant, unavoidable impacts to desert tortoise and desert tortoise habitat. There is not feasible mitigation to reduce these impacts to a less than significant level.

As described above, the ISEGS project would contribute to significant and unavoidable impacts on land use due to the permanent conversion of habitat and land used for recreational purposes. Although the transmission component of the EITP constitutes an upgrade of an existing transmission line, the Ivanpah Substation is a newly proposed component and would require the permanent conversion of undeveloped land. Together, the EITP and ISEGS would contribute to significant and unavoidable cumulative impacts on land use.

The EITP substation component and the ISEGS project would be collocated. The ISEGS project would result in significant and unavoidable impacts on the following viewer groups: the Primm Valley Golf Course, middleground distance viewpoints on I-15, viewpoints in the Mojave National Preserve on the eastern face of Clark Mountain, and viewpoints in the Stateline Wilderness Area, including the Umberci Mine. Additionally, the ISEGS project could result in glare impacts for viewers on the Ivanpah Valley floor, because glare may interfere with views of the Clark Mountains. The Ivanpah Substation would be surrounded by the ISEGS project and therefore may be visible to these viewer groups although, given the relative scale, would likely not be distinguishable from these locations. Considered together, the impact of the EITP and the ISGES project on these viewers, including potential glare impacts, would be significant and unavoidable, and there is no feasible mitigation to reduce this impact to less than significant levels.

6.2 Significant Irreversible and Irretrievable Commitment of Resources

This section discusses significant irreversible changes to and irretrievable commitments of resources as a result of energy and materials consumption, accidental release of hazardous materials, land disturbance (and associated habitat loss for sensitive biological resources), damage to or the loss of cultural or paleontological resources, land use, and visual impacts. During the proposed project's operational phase, the transmission of electrical power generated from nonrenewable resources would continue. Operation of the proposed project, however, would facilitate the distribution of solar energy from the ISEGS project and accommodate the area's potential for renewable power

generation in order to achieve the State of California Renewables Portfolio Standard goals. For this reason, the irreversible and irretrievable resource commitments discussed in this section are considered to be acceptable.

6.2.1 Energy and Materials Consumption

Implementation of the proposed project would result in the consumption of energy and materials. Fossil fuels would be required for construction of the proposed project as well as operation and maintenance. A total of 35,000 gallons of gasoline, 665,000 of diesel, and 8,300 of aviation fuel are estimated to be required for construction of the proposed project. The amount of fossil fuels to be stored for the emergency back-up generator for microwave telecommunications is estimated at 499 gallons of liquefied petroleum gas (LPG).

The proposed Ivanpah Substation would be routinely visited on a monthly basis, and the Eldorado–Ivanpah Transmission Line would be monitored routinely in its entirety by helicopter or truck on an annual basis. Additional visits for maintenance purposes would be expected in response to inclement weather or other issues as needed—generally five or more times annually for the transmission line and 20 or more times annually for the substation. The Nipton, California, microwave site would also be visited for operations and maintenance purposes several times annually.

Additionally, construction would require the manufacture of new materials, some of which would not be recyclable after the estimated 80-year lifespan for the proposed project. The raw materials and energy required for the production of these materials would also result in an irretrievable commitment of natural resources. Operation and maintenance of the proposed project or its alternatives would not cause a substantial increase in the consumption or use of non-renewable resources.

6.2.2 Hazards and Hazardous Materials

Construction activities could result in the accidental release of hazardous materials in localized areas of the transmission line, Ivanpah Substation, or telecommunication lines. Such accidents could pose a hazard to humans or result in long-term impacts on the environment. With mitigation, however, potential impacts would be reduced to less than significant levels. No long-term adverse impacts would occur as result of construction, operation, or maintenance of the proposed project or its alternatives.

6.2.3 Land Disturbance

Clearing and grading activities for proposed project infrastructure (e.g., the new substation; improvements to existing access and spur roads; new access and spur roads; staging areas; powerline tension and pull areas; stringing and splicing areas; and tower and pole installation) would cause direct losses of vegetation communities and would be potential sources of direct mortality to wildlife. Wildlife would also be indirectly impacted through the loss or modification of vegetation.

Approximately ~~51~~ 54 acres of land would permanently be disturbed with implementation of the proposed project. Consequently, ~~51~~ 54 acres of plant and wildlife habitat would be eliminated. Approximately ~~424~~ 426 acres would temporarily be disturbed during construction of the proposed project; therefore, total land disturbance would be approximately ~~465~~ 480 acres (~~464.9~~ 479.6; Table 6-1). The extent that temporary land disturbances would impact biological resources would vary by vegetation or wildlife community and the location of disturbance. The loss of habitat from permanently disturbed land would be long-term, enduring throughout the 80-year lifespan estimated for the proposed project.

The amount of land that would be disturbed with the implementation of each alternative is provided in Table 6-1. The effect of land disturbance with the implementation of each alternative would be similar to that of the proposed project. Potential impacts from land disturbance are further analyzed in Section 3.4, "Biological Resources."

Table 6-1 Estimated Land Disturbance by Alternative

Component	Acres Disturbed During Construction [1, 2]	Acres Permanently Disturbed [1]
Proposed Project (Proposed Action)	~~464.9~~ 479.6	~~51.2~~ 53.7
Transmission Route Alternative A	~~536.3~~ 545.7	~~59~~ 57.3
Transmission Route Alternative B	~~605.5~~ 616.9	61.2
Transmission Route Alternative C	~~551.8~~ 563.2	57.7
Transmission Route Alternative D	~~526.9~~ 538.3	52.4
Transmission Route Alternative E	~~525.1~~ 536.5	52.2
Golf Course Telecommunication Alternative	~~475.5~~ 489.0	~~51.3~~ 53.8
Mountain Pass Telecommunication Alternative	~~475.7~~ 489.2	~~51.3~~ 53.8

Notes:
[1] Land disturbance estimations are based on the applicant's preliminary design information and are subject to change during final engineering.
[2] Construction land disturbances include both temporary and permanent land disturbance estimations.

Transmission Alternative Route A would shorten the overall length of the proposed project by one mile but require additional right-of-way (ROW). There would be an increase in total permanent impacts by 0.2 acres and an increase in temporary impacts by 17 acres in previously undisturbed desert habitat. The increase in acreage of both permanent and temporary impacts would be due to construction activities required for the completion of this alternative. Transmission Alternative Routes B and C and would result in a longer transmission line and require additional ROW, which would increase the acreage of permanent and temporary impacts. Transmission Alternative Route D and Subalternative E would result in a slightly longer transmission line, which would increase the acreage of habitat that is temporarily impacted. The acreage permanently impacted would be slightly greater than under the proposed project.

The Golf Course and Mountain Pass Telecommunication Alternatives would result in the installation of additional communication line (20 and 25 miles, respectively). There would be a substantial increase in the acreage of habitat that would be impacted as a result of these alternatives. The No Project Alternative would not result in impacts to biological resources. Under this alternative, construction, demolition, or ground disturbance would not occur because neither the proposed project nor the alternatives would be implemented.

6.2.4 Cultural Resources

Construction of the proposed project would result in a significant impact on cultural resource sites 36-10315 and 36-7694/26CK4957 (Section 3.5, "Cultural Resources"). Without mitigation, impacts would be adverse and permanent. Implementation of mitigation measures, however, would reduce all potentially significant impacts associated with the proposed project to less than significant levels.

Site 36-10315/26CK8280, the Boulder Dam–San Bernardino 132-kV Transmission Line, would be impacted by the EITP because towers from this line would be removed and replaced with new towers to accommodate the existing and new transmission capacity. While this impact could not be avoided, mitigation would be incorporated that would require a full record be made of the resource before impacts are made. ~~Site 36-7694/26CK4957, the Los Angeles Department of Water and Power Boulder Transmission Line, was determined eligible for the National Register of Historic Places in 1994. The applicant intends to span over the line using H-Frame towers, which would allow the EITP line to cross the historic line without impacting it.~~ Implementation of APM CR-2 would minimize impacts to less than significant levels.

Transmission Route Alternatives A and B would cross no known cultural resources, and no newly discovered cultural resources were found during the field survey of this alternative. Transmission Route Alternative C would result in

significant adverse permanent impacts to ~~sites~~ site 36-10315 ~~and 36-7694/26CK4957~~ by altering the setting and disturbing elements of the site that contribute to its historic significance. Without mitigation, impacts would be adverse and permanent. With mitigation, potential impacts would be reduced to less than significant levels.

Transmission Route Alternatives D and E would not result in impacts on cultural resources. The alternative routes contain no previously recorded cultural resources, and no newly discovered cultural resources were found during the field surveys. The Golf Course and Mountain Pass Telecommunication Alternatives would also not result in impacts to known cultural resources. The No Project Alternative would not result in impacts to cultural resources.

If subsurface cultural resources or human remains are discovered with the implementation of the proposed project and any of the alternatives, an impact could occur. Implementation of the mitigation described in Section 3.5, "Cultural Resources," would reduce potential impacts to less than significant levels.

6.2.5 Geology, Soils, Minerals, and Paleontology

The proposed project would result in minor long-term impacts to geology and soil resources because of transmission line, Ivanpah Substation, and telecommunication line construction. Activities associated with the construction of access road and structures along the transmission and telecommunication line routes would disturb the existing ground surface and natural drainages, causing minor erosion-related impacts. Operations and maintenance activities would result in continued erosion.

Expansive soils in the proposed project area could result in low to moderate levels of structural failure of the transmission and telecommunication line poles and towers and the Ivanpah Substation. There is also the potential for impacts as a result of changing geologic conditions including seismic events (fault rupture and ground shaking), subsidence, or liquefaction. Numerous non-metallic and metallic mineral deposits occur along or near the transmission line route. Non-metallic deposits within the general project area include pumice, feldspar, limestone, and sand and gravel, with sand and gravel potential being the highest along the routes.

Several paleontological resources would be located within 1 mile of the proposed project and one paleontological resource location would be within 300 feet. The nearest location identified in record searches indicated the presence of indeterminate large mammal bone fragments. All potentially significant geology, soil, mineral, and paleontological impacts would be mitigated to less than significant levels. All potentially significant short and long-term geology, soil, mineral, and paleontological impacts associated with the proposed project would be mitigated to less than significant levels (Section 3.6, "Geology, Soils, Minerals, and Paleontology").

Implementation of Transmission Route Alternatives A and B would result in negligible impacts associated with seismic ground shaking, and seismic-related ground failure including liquefaction. Minor impacts would be associated with erosion and unstable geologic units (subsidence). Negligible impacts would be associated with expansive soil and non-metallic mineral resources. Construction of Transmission Route Alternatives A and B may also impact buried paleontological resources as a result of ground-disturbing activities. The two routes could impact areas where underlying formations have been identified as high paleontological sensitivity.

Implementation of Transmission Route Alternative C could result in several impacts. A segment of the Stateline Fault System crosses Transmission Route Alternative C along the California–Nevada border. This impact would be negligible and localized but long term. Minor impacts would be associated with erosion and result from unstable geologic units (subsidence). Negligible impact would be associated with expansive soil and non-metallic mineral resources. Areas where underlying formations have been identified as high paleontological sensitivity could also be impacted.

Impacts and mitigation associated with Transmission Route Alternatives D and E would be similar to those associated with Transmission Route Alternative C. Only Transmission Route Alternatives C and D, however, would

cross a segment of the Stateline Fault System. Impacts associated with the Golf Course and Mountain Pass Telecommunication Alternatives would also be similar to those associated with the proposed project and Transmission Route Alternatives A, C, and D. The No Project Alternative would have no impact on existing geologic, soil, mineral, or paleontological resources. All potentially significant short and long-term geology, soil, mineral, and paleontological impacts associated with the alternatives would be mitigated to less than significant levels (Section 3.6, "Geology, Soils, Minerals, and Paleontology").

6.2.6 Land Use

Long-term negligible adverse impacts on the Clark Mountain grazing allotment would occur as a result of proposed project construction. No additional long-term adverse impacts on existing, approved land use plans, livestock grazing management, livestock, or Special Management Areas would occur as a result of implementation of the proposed project or Transmission Route Alternatives A through E, the Golf Course or Mountain Pass Telecommunication Alternatives, or the No Project Alternative (Section 3.9, "Land Use").

~~While an EIS for the Southern Nevada Supplemental Airport is currently in progress and is expected to be completed by 2012, the applicant would consult with the Federal Aviation Administration prior to final project design to determine if a Hazard/No Hazard Determination is necessary as discussed in Section 3.7, "Hazards, Health, and Safety." Once this determination is made, land use impacts on the Ivanpah Airport Environs Overlay would be reduced.~~

The Southern Nevada Supplemental Airport project has been placed on hold indefinitely; however, the applicant has filed Form 7460s with the Federal Aviation Administration (FAA) and will implement all FAA requirements when the SNSA is constructed as discussed in Section 3.7, "Hazards, Health, and Safety." Implementing all FAA requirements will reduce all impacts associated with the SNSA to less than significant.

The portion of the proposed project that crosses the BCCE would be constructed mostly within the boundary of BLM-managed utility corridors; however, less than one mile would cross outside of the corridor at MP 2 along an existing 70-foot ROW, which would require approval from Clark County and Boulder City. With the approval of these jurisdictions, impacts on land use within the BCCE would be reduced.

6.2.7 Visual Impacts

The proposed project would result in permanent, minor, adverse impacts on visual resources because of the use of taller transmission line structures and construction of the Ivanpah Substation and microwave tower. The undergrounded portion of the telecommunications line would result in temporary moderate impacts on visual resources. All visual impacts would be consistent with applicable BLM visual resource designations for the proposed project area, however, and would not significantly impact visual resources (Section 3.9, "Visual Resources").

Implementation of Transmission Route Alternatives A through E would result in stronger overall visual contrast in comparison to the proposed project. Increased visual contrast would occur in areas where the alternative routes would veer from the existing transmission line route. Visual impacts would still be consistent with applicable BLM visual resource designations, however, and would not significantly impact visual resources.

The Golf Course and Mountain Pass Telecommunication Alternatives would result in moderate temporary impacts on visual resources because of an additional segment of trenching along Nipton Road but would not result in long-term impacts. A segment of the Mountain Pass Telecommunication Alternative would traverse an area designated by the BLM with stricter objectives for visual resources than the proposed project or other alternative routes, but would still not result in significant impacts. This segment of telecommunication line would be strung on existing 33-kV distribution structures. It would not result in a visual impact because the new telecommunication line would not be noticeable with respect to the existing distribution lines. Under the No Project Alternative, there would be no impact on visual resources.

~~6.2.8 Hydrological and Water Quality~~

~~Construction of the proposed project and its alternatives would result in localized erosion and sedimentation impacts ranging from minor to moderate. Additionally, the proposed project and its alternatives would use water for dust suppression during construction, and water would be used at the substation for sanitary purposes and fire control during emergencies during proposed project operation. The applicant has stated that no wells would be drilled for water supply; however, until the water source is identified by the applicant, potential minor to moderate localized impacts on groundwater are assumed (see MM W-2, Water Use Plan).~~

6.2.8 Ivanpah Solar Electric Generating System Project

Implementation of the ISEGS project would result in the consumption of a substantial amount of energy from fuel (i.e., gasoline, diesel, and jet fuel) for construction activities. Additionally, construction would require the manufacture of new materials, some of which would not be recyclable when the ISEGS project is decommissioned. The raw materials and energy required for the production of these materials would also result in an irretrievable commitment of natural resources. Operation of the ISEGS project would not cause a substantial increase in the consumption or use of non-renewable resources. Therefore, the combined impact of EITP and ISEGS would result in an irretrievable commitment of natural resources during construction, which would be adverse; however, considering that the combined impact of the two projects would reduce overall dependence upon fossil fuels, the impact would be less than significant.

The use of a limited amount of hazardous materials (e.g., fuel, lubricants, and cleaning solvents) would be required. Hazardous materials would be stored, handled, and used in accordance with best management practices and applicable federal, state, and local regulations. Assuming appropriate implementation of plans and practices, impacts associated with the degradation of the environment because of the accidental release of hazardous materials would be less than significant. Therefore, the combined impact of EITP and ISEGS would also be less than significant.

Implementation of the ISEGS project would require the loss of approximately ~~4,073~~ 3,597 acres of vegetation and wildlife ~~and~~ habitat. The loss of this habitat would be long-term, enduring throughout the proposed 50-year lifespan of the ISEGS project facility. Following decommissioning, restoration would be conducted which would involve removal of structures, restoration of topography, and revegetation, all of which would work towards restoration of the original habitat. However, it is likely that restoration of native vegetation would be slow and the success uncertain. The loss of desert tortoise habitat would be permanent since restoration of vegetation for which they depend for foraging and other factors affecting the quality of the restored habitat would be uncertain. Because the EITP would also require the loss of 442 acres of vegetation and wildlife habitat, the combined acreage loss would be approximately 4039 acres.

The majority of access required for construction, operation, and maintenance of the ISEGS project would use existing ROW and access roads. Opportunities for public access would not be significantly affected nor would previously inaccessible areas be made accessible. Therefore, the combined impact of the EITP and ISEGS would be less than significant.

Visual impacts would be significant and long-term enduring throughout the proposed 50-year lifespan of the facility. The ISEGS project site would be near a national preserve, two designated wilderness areas, and an area used for *land sailing*—moving on land in a wind-powered wheeled vehicle with a sail on flat open spaces such as Ivanpah Dry Lake. Concerns were expressed during the public comment period regarding potential impacts on visual resources as well as the level of glare from the solar towers; and concern over cumulative visual effects of renewable projects on the Southern California Mojave Desert as a whole. After the end of the ISEGS project's useful life, it would be decommissioned and the area restored and revegetated, but visual recovery is would likely take a very long period of time. While the EITP's contribution to the ISEGS impact would be less than significant, because ISEGS would have a

significant and long-term visual impact throughout the life of the project and possibly beyond decommissioning, the combined impact of the EITP and ISEGS would also be considered significant.

6.3 Growth-Inducing Effects

The proposed project would induce growth if it results in additional development, such as increases in population, employment and/or housing above and beyond what is already assumed will occur in local and regional land use plans or in projections made by regional planning authorities, irrespective of the proposed project. Under CEQA (Section 15126.2(d)), the proposed project would be growth-inducing if it:

- Directly or indirectly fosters economic or population growth or the construction of additional housing;
- Taxes community facilities to the extent that the construction of new facilities would be necessary;
- Removes obstacles to population growth; or
- Encourages or facilitates other activities that cause significant environmental effects.

Typical growth inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area or the removal of major barriers to development. This section evaluates the proposed project's potential to create such growth inducements. It should also be noted that growth inducement can be positive or negative depending on resulting effects and the development objectives of the planning authorities in the proposed project area. Negative impacts associated with growth inducement would occur only where growth associated with the proposed project would result in significant/adverse environmental impacts.

6.3.1 Workforce for the Proposed Project / Proposed Action

6.3.1.1 Construction

Section 3.13, "Socioeconomics, Population and Housing, and Environmental Justice" provides a detailed description of the availability of existing labor within the proposed project area. Construction employment for the proposed project would include both skilled and semi-skilled positions. The construction workforce available in San Bernardino County, California is 35,973 and Clark County, Nevada 92,364. As discussed in Chapter 2.0, "Description of the Proposed Project and Alternatives," construction of the proposed project would occur over an estimated 18-month period and require a total construction workforce of approximately 190 workers.

Because the total expected construction workforce is 190 workers (approximately 0.015 percent of the total workers available), it is not expected that any additional workers would be required to relocate into the proposed project area during construction. The presence of 190 workers in the proposed project area would have a localized beneficial effect as a result of the temporary localized spending on goods and services, but this effect would be short-term and would not be expected to result in a permanent increase in housing or need for community facilities that could not be met by existing services and facilities.

The analysis presented in Section 3.11, "Public Services and Utilities," confirms that construction of the proposed project would not create significant additional demands for emergency response services, schools, drinking water, or solid waste and wastewater facilities that could not be met by existing providers and facilities. Therefore, workforce required for construction of the proposed project would not have any direct or indirect growth inducing effect.

6.3.1.2 Operation

Operation and maintenance of the proposed project would be conducted by the existing work force currently assigned to the operation and maintenance of the existing Eldorado–Ivanpah Transmission Line (Section,

"Socioeconomics, Population and Housing, and Environmental Justice") and would not create new jobs locally or regionally. Operation of the proposed project would not cause growth in population, employment, or housing because no additional workers would be required beyond those currently employed.

The analysis presented in Section 3.11, "Public Services and Utilities," confirms that operation and maintenance of the proposed project would not create long-term demands for emergency response services, schools, drinking water, or solid waste and wastewater facilities that could not be met by existing services and facilities. Therefore, workforce required for operation and maintenance of the proposed project would not have any direct or indirect growth inducing effect.

6.3.1.3 Alternatives

Potential growth-inducing impacts from implementation of each alternative would be similar to that for the proposed project. The alternatives would require a similar number of workers as the proposed project. Under the No Project Alternative, there would be no growth-inducing impacts on the proposed project area. Therefore, workforce required for implementation of the alternatives would not have any direct or indirect growth inducing effect.

6.3.2 Provisions for Additional Electric Power

As described previously, growth inducement can occur directly, as a result of increases in employment, housing, and demands for public facilities and services. Growth inducement can also occur indirectly as the result of the removal of existing constraints to growth or the creation of factors that encourage or otherwise facilitate development that would not otherwise have occurred. The provision of electrical power can be a trigger for growth, either by alleviating a constraint where limitations on power availability are curtailing development and growth that would otherwise occur or by providing easier and/or cheaper access to power.

The purpose of and need for the EITP is to connect renewable generation sources in the Ivanpah Valley region to the existing electrical transmission grid and to enable the applicant to comply with California's Renewables Portfolio Standards (Chapter 1, "Purpose and Need"). The Renewables Portfolio Standards and Energy Action Plan require utilities, including the applicant, to increase the sale of electricity produced by renewable energy sources including solar facilities to meet a goal of 20 percent renewable energy generation by 2010. The Ivanpah Valley area has been identified as an area with high potential for solar resource development. The proposed project would allow the applicant to increase the percentage of renewable resources in its energy portfolio and assist them in reaching the goals set in the Renewable Portfolio Standards.

In addition, the Energy Policy Act of 2005 requires the Department of the Interior (the BLM's parent agency) to approve at least 10,000 megawatts (MW) of renewable energy on public lands by 2015. Currently, proposed renewable energy projects amounting to 1,900 MW of electricity are on file with the BLM for the Ivanpah Valley area. The EITP would allow for the transmission and distribution of energy from proposed renewable energy generation facilities.

Irrespective of the proposed project, population in both San Bernardino and Clark counties has increased substantially in the last decade and is expected to continue to increase (Section 3.13, "Socioeconomics, Population and Housing, and Environmental Justice"). It is anticipated that growth would occur regardless of the availability of additional renewable energy and electrical transmission capacity. Further, it is not anticipated that the proposed project would have any effect on population growth because associated energy demands would be met by other means.

Additionally, as described in Section 2.3.5, "No Project/No Action Alternative," if the EITP is not constructed, it is assumed that the proposed renewable power generation projects that the EITP would be intended to serve would still proceed. These renewable power projects would need alternate means to connect to electrical transmission systems.

SCE or other electrical transmission companies that currently serve the Ivanpah Valley region would be likely candidates for providing electrical transmission projects if the EITP was not constructed.

Therefore, because the proposed project would not result in increases in employment, housing, or the demands for public facilities and services nor result in the removal of existing constraints to growth or the creation of factors that encourage or otherwise facilitate development that would not otherwise have occurred, its implementation would not have any direct or indirect growth inducing effect due to the provision for additional electric power.

6.3.2.1 Alternatives

Potential growth-inducing impacts from implementation of each alternative would be similar to that for the proposed project. The alternatives comprise route variations of the proposed project transmission and telecommunication lines and would not result in differences in the amount of power that would be transmitted or the location of substations where power would be transmitted. Under the No Project Alternative, there would be no growth-inducing impacts on the proposed project area. Therefore, provisions for additional electric power resulting from implementation of the alternatives would not have any direct or indirect growth inducing effect.

6.3.3 Ivanpah Solar Electric Generating System Project

The ISEGS project would employ up to 959 construction personnel (peak workforce) and 90 full time equivalent positions during operations ~~personnel~~. Construction workers would commute as much as 2 hours each direction from their communities rather than relocate, and operations workers would commute as much as 1 hour.

Socioeconomics data for the 1- and 2-hour commute ranges in counties were reviewed. The counties included San Bernardino and Clark and others that were within the commute range. It was determined that there are approximately 231,000 construction workers within the commute-range study area. The number of workers required for the ISEGS project would be negligible with respect to the total number of workers available. Additionally, all workers would reside within the study area, and no impacts on existing population levels would occur. Because the EITP would also have no impact on existing population levels, the combined impact of ISEGS and EITP would also have no impact.

The primary need for the ISEGS project relates to federal and state requirements for the generation of renewable energy. According to the California Energy Commission (CEC), peak electricity demand within California is projected to increase at a rate of 1.35 percent per year (CPUC, CEC, and CPA 2008), and therefore, additional generating capacity from new sources will be required. The ISEGS project is not intended to supply power related to growth for any particular development and would not result in direct growth-inducing impacts. However, the ISEGS project could facilitate growth indirectly through the additional increased capacity of electric power that it would make available (CEC and BLM 2009). This finding differs from the discussion of the EITP above, which concludes that there would no direct or indirect growth inducing impact from the implementation of the EITP. Nevertheless, because ISEGS may facilitate growth indirectly, the combined impact of the EITP and ISEGS could also indirectly effect growth.

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7. Consultation and Coordination

7.1 Public Participation and Notification

The public participation and notification program for the EITP EIR/EIS focused on two primary areas under CEQA and NEPA; these areas were (1) the Public Scoping process and (2) the Draft EIR/EIS public review process. This section discusses the specific public scoping methods used for this EIR/EIS to comply with state and federal public outreach requirements.

7.1.1 Scoping Process

Scoping Requirements

Scoping is required by CEQA for projects of "statewide, regional or area-wide significance" per §21083 of the California Public Resources Code and by NEPA pursuant to the Council on Environmental Quality 1979 regulations (40 CFR 1501.7). This process ensures that significant public issues, alternatives, and impacts are addressed in environmental documents and determines the scope and degree to which these issues and impacts will be analyzed.

Scoping for Proposed Project EIR/EIS

The scoping process for the EITP EIR/EIS consisted of the following four main elements:

1. Publication of the Notice of Preparation (NOP) to prepare an EIR and the Notice of Intent (NOI) to prepare an EIS.
2. Establishment of public information repositories for scoping and project documents, including a website and an electronic mail address for comments.
3. Hosting of public scoping meetings and an inter-agency consultation meeting.
4. Documentation of all public and agency comments received in a Scoping Summary Report.

These elements are described in the following sections.

As part of the project approval process and in compliance with the requirements of CEQA and NEPA, the public scoping process was intended to allow the public, interested parties and regulatory agencies an opportunity to comment on the scope of the EIR/EIS and to identify issues that should be addressed in the document. Federal, state, regional, and city agencies; Native American tribes and communities; businesses; and interested groups and individuals were given the opportunity to participate in the scoping process by providing comments and recommendations at the scoping meetings or via the EITP scoping comment repositories.

7.1.1.1 Notices of Preparation and Intent

NOP/NOI Requirements

After deciding that an EIR/EIS is needed, both the state and federal lead agencies are required to prepare and distribute a notice informing interested parties that an EIR or EIS, respectively, will be prepared. CEQA requires that the state lead agency prepare an NOP, and NEPA requires that the federal lead agency prepare an NOI. The NOP and NOI are prepared to inform interested parties about the proposed project and to solicit their participation in the EIR/EIS scoping process.

CEQA states that an NOP be sent "immediately after deciding that an environmental impact report is required for the project" (15082[a]) and include "sufficient information describing the project and the potential environmental effects to enable the responsible agencies to make a meaningful response" (15082[a][1]). Similar to an NOP, an NOI is published by the lead federal agency to serve as the official legal notice that an EIS is being prepared for a project (40 Code of Federal Regulations [CFR] 1501.7). The NOI must include a description of the proposed project and possible alternatives, the federal lead agency's scoping process, and the lead agency's contact information for the project (40 CFR 1508.22).

NOP/NOI for the Eldorado–Ivanpah Transmission Project EIR/EIS

Pursuant to the state and federal requirements discussed above, an NOP and an NOI were distributed for the EITP. The CPUC provided an NOP to the California State Clearinghouse for release on July 23, 2009. The NOP was mailed to133 government agencies, as well as 96 residents and nongovernmental organizations to inform the public of the proposed project and provide notice of the public scoping meetings. The BLM published an NOI for NEPA in the Federal Register on July 27, 2009.

The NOP and NOI are provided as an appendix to the Scoping Summary Report in Appendix E of this EIR/EIS.

7.1.1.2 Scoping Meetings

Scoping Meeting Requirements

CEQA recommends that public scoping be combined to the extent possible with consultation with responsible agencies, as required under 14 California Code of Regulations (CCR) 15802. Consultation is conducted with agencies that will be involved in the environmental review process locally, as well as state and federal agencies and tribal governments, as appropriate.

When public scoping is conducted, NEPA requires that public meetings be conducted in accordance with statutory requirements and other criteria (e.g., consideration of the interest in or environmental controversy of the proposed project; 40 CFR 1506.6[c]).

Scoping Meetings

The CPUC and the BLM conducted joint public scoping meetings along the proposed route in Nipton, California, on Tuesday, July 28, 2009, and in Las Vegas, Nevada, on Wednesday, July 29, 2009 (Table 7.1). The format for the scoping meetings included an open house, a PowerPoint presentation describing the EITP, and an opportunity to provide verbal or written comments.

Table 7.1 Public Scoping Meetings

Date and Time	Location	No. of People Signed-in	Comments Received at Meeting
Tues., July 28, 2009, 4–7 p.m.	Primm Valley Golf Club, Nipton, CA	3	0
Wed., July 29, 2009, 6–9 p.m.	South Point Hotel, Las Vegas, NV	7	0

An open house was held for one hour prior to each scoping meeting so that participants could review displays, maps, and literature, as well as meet members of the EIR/EIS project team, agency staff, and project personnel. To encourage public comment, repositories were provided to receive written comments. Several informational sheets about the proposed project and extra copies of the NOP/NOI were made available to the public at each venue.

Each scoping meeting began with presentations by the CPUC and the BLM describing their roles as lead agencies under the CEQA/NEPA processes, followed by an overview of the technical aspects of the proposed project. This included a detailed presentation of the current route, accompanied by an explanation of the project need. Lastly, the

environmental consulting firm preparing the EIR/EIS for the CPUC and the BLM explained its role as third-party consultant, discussed opportunities for public involvement, and provided an overview of the environmental issues already identified that would be addressed in the EIR/EIS.

Each meeting concluded with a public comment period in which the agencies invited the public to comment verbally on the project. A court reporter was available to record comments. Participants were also given the opportunity to provide written comments or to take a comment form to fill out and mail in later. Attendees were encouraged to take additional comment forms with them to distribute. Nine persons attended the two meetings.

The following handouts and informational materials were available at the public meetings:

- Public scoping and public involvement overview
- Scoping meeting fact sheets
- NOP copies
- NOI copies
- Electric transmission information
- Project overview
- Noise and electric and magnetic fields (EMF) information
- Project overview and Public scoping and public involvement overview also available in Spanish

Alternatives Screening

The range of alternatives evaluated in the alternative screening process was identified through the CEQA/NEPA scoping process and through supplemental studies and consultations that were conducted during this analysis. The range of alternatives considered in the screening analysis comprised (1) alternatives identified by the applicant as part of the Preliminary Environmental Assessment (PEA), (2) alternatives requested by the CEQA lead agency (CPUC) or the NEPA lead agency (BLM), and (3) alternatives identified by the general public during the 30-day public scoping period (July 23 to August 26, 2009), in accordance with CEQA and NEPA requirements. The Alternatives Screening Report (Appendix A) provides a detailed discussion of the alternatives screening process.

7.1.1.3 Scoping and Alternatives Reports Summaries

Scoping Report Summary

In accordance with 40 CFR 1503.4, which requires that all substantive comments be considered to the extent feasible prior to project decisions, comments received during the scoping period were categorized by issue and included in a comprehensive scoping summary report entitled *Southern California Edison Eldorado–Ivanpah Transmission Project Scoping Summary Report*, issued and made available on the CPUC website for the project in October 2009 (Appendix E). The report summarized the comments and issues raised during the scoping period between July 27 and August 26, 2009.

Four primary areas of concern were identified during the public scoping process: (1) impacts of the project on several biological resources, especially desert tortoise, (2) compatibility with regional land uses such as the planned Southern Nevada Supplemental Airport, (3) compatibility with other existing rights-of-way designations, and (4) cumulative impacts.

Alternatives Screening Report Summary

As a result of the alternatives screening process, seven of the initial 17 alternatives were chosen for detailed analysis in the EIR/EIS. Chapter 2 describes each alternative considered for analysis, in detail, and provides a determination for each based on the advantages and disadvantages identified from the screening criteria, as detailed in the Alternatives Screening Report (Appendix A).

7.1.2 Notice of Availability

CEQA Guidelines Section 15085 requires that a Notice of Completion (NOC) be filed by the lead state agency upon completion of the Draft EIR. The NOC informs the reviewers that a Draft EIR is complete. Similarly, NEPA requires that a Notice of Availability (NOA) that corresponds to the NOC be filed by the lead federal agency once the EIR/EIS is available for public review (40 CFR 1506.10). The NOC is filed with the State Clearinghouse. An NOA of the Draft EIR/EIS must also be published in the Federal Register. An NOA for the Draft ISEGS Final Staff Assessment / Draft Environmental Impact Statement was published in the Federal Register.

7.1.3 Draft EIR/EIS Public Hearings / Meetings and Comments

Public Hearings/ Meetings Requirements

NEPA requires that federal agencies allow no less than 45 days for comments on a draft EIS. Under CEQA Guidelines, section 15105, subd. (a), the "public review period for the draft EIR should not be less than 30 days nor longer than 60 days except in unusual circumstances." The 45-day public comment period for the Draft EIR/EIS that was published April 30, 2010, concluded June 26, 2010, meeting both the requirements of CEQA and NEPA. As stated above, the NOA described information regarding the 45-day public review period and included notice of public meetings on May 26, 2010.

The purpose of the Draft EIR/EIS public hearings/meetings was to disclose the environmental effects of the proposed transmission line, describe alternatives to the proposed action under consideration in the decision making process and provide interested parties with an opportunity to submit oral and written comments to the Draft EIR/EIS.

Public Hearings/Meetings

The CPUC and the BLM conducted joint public comment meetings along the proposed route in Nipton, California and Las Vegas, Nevada on Wednesday, May 26, 2010 (Table 7.2). The format for the public meetings included a PowerPoint presentation describing the findings of the environmental analysis. Comment cards were provided to encourage public verbal or written comment to the Draft EIR/EIS and informational sheets about environmental impacts of the proposed project were made available to the public at each venue.

Table 7.2 Public Meetings

Date and Time	Location	No. of People Signed-in	Comments Received at Meeting
Wed., May 26, 2010, 1–3 p.m.	Primm Valley Golf Club, Nipton, CA	5	0
Wed., May 26, 2009, 6–8 p.m.	Jean Sport Aviation Center, Las Vegas, NV	3	0

The joint public meetings were recorded and entered into the public record. Each public meeting included presentations by the CPUC and the BLM describing the purpose and preparation stages of the EITP EIR/EIS under the CEQA/NEPA process followed by a description of other local and state entities which contributed to the preparation of the document. The environmental consulting firm provided a technical overview of the project objective and components including a description of the proposed route, alternatives and "Whole of the Action/Cumulative Action" assessment. An overview of the impact analysis and Draft EIR/EIS findings of significance was explained emphasizing impacts that were categorized as significant or major adverse. Lastly the meetings concluded with a comment session for attendees.

Each meeting included a period for public comment where agencies invited the public to provide verbal or written input. A court reporter was available to record comments, and comment forms were provided to make comments to be mailed-in at a later date. Eight persons attended the two meetings. No verbal or written comments were submitted prior to June 26, 2010, close of the comment period.

The following factsheets and informational materials were made available at the public meetings:

- Project Overview
- Public Comment Process
- Draft EIR/EIS Findings

To ensure that the review of the Draft EIR/EIS was conducted in a timely manner, efforts were made for the document to be readily available to the public in both electronic and paper formats described below in 7.1.4, Document Repository Sites.

DEIR-EIS Draft Comments

Following the release of the Draft EIR/EIS, concerned citizens, interested parties and governmental agencies were given the opportunity to review and comment on the findings of the document. Comments ranged from requests for clarification on the applicant's project description to requests for additional resource-specific information for several resource sections (e.g., air quality, biology, hazards and safety, and land use), comments on the Whole of the Action / Cumulative Action approach, and comments on the range of project alternatives. Comments were received from the following governmental entities:

- US Environmental Protection Agency;
- California Department of Fish and Game;
- California Department of Transportation;
- California Department of Toxic Substances Control;
- California State Lands Commission;
- Clark County Department of Aviation;
- Mojave Dessert Air Quality Management District: and
- Nevada Department of Wildlife.

Comments were received from the following interested parties:

- BrightSource Energy;
- Center for Biological Diversity, San Francisco Office;
- Desert Conservation Program;
- Powers Engineering;
- Sierra Club;
- Southern California Edison; and
- Western Watersheds Project.

7.1.4 Document Repository Sites

Document Repository Site Requirements

Both CEQA and NEPA require the state and federal lead agencies to make project documents available to the public. CEQA CCR Section 15087 provides requirements that apply to the public review of the Draft EIR. NEPA 40 CFR 1506.6(f) states that the lead federal agency is required to "make environmental impact statements, the comments received, and any underlying documents available to the public pursuant to the provisions of the Freedom of Information Act (5 U.S.C. 552)." In addition, CEQA requires that the California Energy Commission (CEC) / BLM ISEGS Final Staff Assessment / Draft EIS (FSA/DEIS), the BLM FEIS, the CEC FSA Addendum, and the CEC Errata to the FSA Air Quality Addendum—referenced and included within the document— ~~incorporated herein by reference,~~ also be made available to the public per CCR Section 15150(b).

Public Repository Sites

To accommodate public review, copies of the EITP Draft and Final EIR/EIS, and documents produced during the course of the environmental review process, are available for public review at the: Las Vegas BLM Field Office; ~~and at the~~ Las Vegas Library, ~~located at~~ 833 Las Vegas Boulevard North, ~~in~~ Las Vegas, Nevada; Searchlight Library, 200 Michael Wendell Way, Searchlight, NV 89046; and Barstow Library, 301 E Buena Vista Street, Barstow, CA 92311. Project information is also posted on the CPUC website at http://www.cpuc.ca.gov/Environment/info/ene/ivanpah/ivanpah.html and the BLM website at http://www.blm.gov/ca/st/en/fo/needles.html.

The ISEGS Final Staff Assessment / Draft Environmental Impact Statement is available for review on the California Energy Commission website at http://www.energy.ca.gov/sitingcases/ivanpah/index.html or the BLM's website at http://www.blm.gov/ca/st/en/fo/needles/nefo_nepa.html. Copies are also available for review at the Needles BLM Field Office and the BLM California State Office in Sacramento.

7.1.5 Project Notification List and Document Distribution List

Ecology and Environment, Inc., (E & E) compiled a comprehensive mailing list for the EITP that included approximately 229 entries. E & E used the mailing list to distribute the NOP and scoping meeting postcards. The mailing list was updated to include individuals who attended the scoping meetings or requested inclusion on the list after the initial mailing of the NOP and the postcard. E & E will use this mailing list to distribute subsequent notices, information, or documents, as applicable. E & E ~~will continue to~~ updated the mailing list as new entries ~~become~~ available. No new entries were made into the mailing list for the public hearing/meetings of the DEIR/EIS.

The mailing list includes the following categories:

- Federal, state, and local agency representatives;
- Representatives of non-governmental organizations;
- Native American tribal government representatives; and
- List of property owners within 300 feet of the EITP footprint from Southern California Edison.

7.2 Organizations and Persons Consulted

CEQA guideline 15129 states, "The EIR shall identify all federal, state, or local agencies, other organizations, and private individuals consulted in preparing the draft EIR, and the persons, firm, or agency preparing the draft EIR, by contract or other authorization." Parties consulted in preparation of the EIR/EIS are listed in Table 7.2.

Table 7.2 Organizations and Persons Consulted

Name	Title	Organization/Agency
Air Quality		
Alan De Salvio	Supervising Air Quality Engineer	Mojave Desert Air Quality Management District
Biological Resources		
Michael Burroughs	Lead Tortoise Biologist	United States Fish and Wildlife Service
Becky Jones	Environmental Scientist	California Department of Fish and Game
Lawrence Whalon	Deputy Superintendent	Mojave National Preserve
Brad Hardenbrook	Supervisory Biologist	Nevada Department of Wildlife (Southern Region)
Roddy Shepard	Roddy Shepherd	Nevada Department of Wildlife
Public Services and Utilities		
Michael R. Richardson	Supervisor/Compliance and Enforcement Branch	Nevada Division of Environmental Protection (Bureau of Waste Management)
Mark Harris	Resource Planning Engineer	Nevada Public Utilities Commission

Table 7.2 Organizations and Persons Consulted

Name	Title	Organization/Agency
Clark County Desert Conservation Program		
Susan Wainscott	Adaptive Management Coordinator/Project Manager	Clark County Desert Conservation Program
Land Use		
Dionicio Gordillo	Principal Planner	Clark County Department of Planning
Jacquelyne Brady	Town Manager	Town of Laughlin, Managers Office
Carrie Hyke	Supervising Planner	San Bernardino County Planning Department
Socioeconomics		
Brok Armantrout	Director	Boulder City Community Development
Transportation and Aviation		
David Kessler (AWP-610.1)	Environmental Protection Specialist	FAA Western Pacific Region, Airports Division
Dan Kopulsky	Senior, Special Studies and IGR/CEQA	California Department of Transportation
Robert Tweedy	Airport Development Administrator	Clark County Department of Aviation
Teresa Motley	Airport Planning Manager	Clark County Department of Aviation
Mark Silverstein	Principal Planner	Clark County Department of Aviation
Tucker Field	Management Analyst II	Clark County Department of Aviation
Scott Thompson	Consultant	Trison Consulting (for CCDOA)
Catherine van Heuven	Consultant	Kaplan, Kirsch & Rockwell LLP (for CCDOA)

7.3 Preparers and Contributors

Persons from the lead agencies (the CPUC and the BLM) involved in the review of the EIR/EIS are listed in Table 7.3.

Table 7.3 Lead Agency Project Team

Name	Title	Agency
Monisha Gangopadhyay	Project Manager	California Public Utilities Commission
Jason Reiger, Esq.	Attorney	California Public Utilities Commission
Nicholas Sher	Attorney	California Public Utilities Commission
Tom Hurshman	Project Manager	Bureau of Land Management
George R. Meckfessel	Planning and Environmental Coordinator	Bureau of Land Management
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Table 7.4 EIR/EIS Preparers and Reviewers

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8. References

1.0 Introduction

Bureau of Land Management. 1980. California Desert Conservation Area Plan.

_____. 1998. Las Vegas Resource Management Plan.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

California Energy Commission. 2007. Strategic Transmission Investment Plan, Publication No. CEC-700-2007-018CTF. Docket No. 06-IEP-1F.

_____. 2008. Integrated Energy Policy Report Update. Publication No. CEC-100-2008-008-CMF.

California Independent System Operator (CAISO). 2008. CAISO Tariff Appendix U, Standard Large Generator Interconnection Procedures.

_____. 2009. The California ISO Controlled Grid Generation Queue. June 30.

_____. 2010. The California ISO Controlled Grid Generation Queue. January 8.

California Public Utilities Commission (CPUC), et al. 2009. Renewable Energy Transmission Initiative Report: Phase 2A. September.

_____. 2010. Renewable Portfolio Standard Quarterly Report: 3rd Quarter 2010.

Southern California Edison. 2010. Right-of-Way Plan of Development, Eldorado-Ivanpah Transmission Line Project. Prepared for Bureau of Land Management. Prepared by EPG, Inc. September 2010.

U.S. Department of Energy (DOE). 2006. National Electric Transmission Congestion Study.

2.0 Description of Proposed Project and Alternatives

Blume, S. 2007. Electric Power System Basics for the Nonelectrical Professional. John Wiley and Sons, New Jersey.

Bonneville Power Administration (BPA). 2006. Klondike III / Biglow Canyon Wind Integration Project. Appendix C: Electrical Effects. Prepared by T. Dan Bracken, Inc. March.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

Dieli, Robert. 2010. Outdoor Recreation Planner. Bureau of Land Management Las Vegas Field Office, Las Vegas, NV. Phone call with Rachel Wilkinson, Ecology and Environment, on October 25.

Grigsby, L.L. (ed.). 2007. Electric Power Generation, Transmission, and Distribution. CRC Press. Boca Raton, FL.

Power Delivery Consultants (PDC). 2010. What Limits Power Flow through an Overhead Transmission Line? http://www.pdc-engineering.com/oh_limits_powerflow.pdf. Accessed October 21, 2010.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

Western Electric Coordinating Council (WECC). 2006. Remedial Action Scheme Design Guide. November.

3.1 Environmental Analysis

Association of Environmental Professionals. 2009. California Environmental Quality Act Statutes and Guidelines, Appendix G, Environmental Checklist Form.

Bureau of Land Management (BLM). 2008. BLM National Environmental Policy Handbook H-1790-1. January.

3.2 Aesthetics and Visual Resources

Boulder City. 2003. Boulder City Master Plan. Special Planning Area Policies: Eldorado Valley.

Bureau of Land Management (BLM). 1980. California Desert Conservation Area Plan.

_____. n.d. Manual H-8410-1: Visual Resource Inventory. January 17. http://www.blm.gov/nstc/VRM/8410.html. Accessed April 15, 2010.

_____. 1998. Las Vegas Resource Management Plan.

_____. 2002. Northern and Eastern Mojave Plan Amendment.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October. Section 6.12, Figure 2.

Clark County. 2006. Clark County Comprehensive Plan. Clark County, NV.

National Aeronautics and Space Administration (NASA). 1986. Chapter 2, Tectonic Landforms: Plate T-4, the Great Basin. In N.M. Short, Sr. and R.W. Blair, Jr. (eds.), Geomorphology from Space. Goddard Earth Sciences Data and Information Services Center. http://disc.sci.gsfc.nasa.gov/geomorphology/GEO_2/GEO_PLATE_T-4.shtml. Accessed April 15, 2010.

Nevada Department of Transportation (NDOT). 2005. I-15 Landscape and Aesthetics Corridor Plan. August 3.

_____. 2009. Nevada's Scenic Byways. Accessed: November 17, 2009. Website: www.nevadadot.com/pub_involvement/scenicbyways/the-byways.asp.

San Bernardino County. 2005. San Bernardino County General Plan: Open Space Element.

San Bernardino County. 2006. San Bernardino County General Plan: Conservation Element.

3.3 Air Quality

California Air Resources Board (CARB). 2008. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed November 11, 2009.

_____. 2009. The Greenhouse Effect and California: Fact Sheet. http://www.arb.ca.gov/cc/factsheets/ccbackground.pdf. Accessed March 18, 2010.

Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Parry, Martin L., Canziani, Osvaldo, et. al.]. Cambridge University Press, Cambridge, United Kingdom.

National Climatic Data Center (NCDC). 1996. Fleet Numerical Meteorology and Oceanography Department and U.S. Air Force Environmental Technical Applications Center Operating Location A. International Station Meteorological Climate Summary Version 4.0. Federal Climate Complex. CD-ROM. September.

Office of Planning and Research (OPR), California Governor's. 2009. CEQA Guidelines and Greenhouse Gases. April 13.

Pew Center on Global Climate Change. 2008. The Causes of Global Climate Change (science brief).

U.S. Environmental Protection Agency. 2009a. 2009 Monitor Values Report: Criteria Air Pollutants.

_____. 2009b. Basic Information: Climate Change. http://www.epa.gov/climatechange/basicinfo.html. Accessed December 3, 2009.

_____. 2009c. Past Climate Change: Science. http://www.epa.gov/climatechange/science/pastcc.html. Accessed December 3, 2009.

3.4 Biological Resources

AECOM. 2010. Eldorado-Ivanpah Transmission Project Supplemental Biotechnical Report 2010 Botanical Survey. Prepared for Southern California Edison, July 2010.

American Ornithologists' Union (AOU). 1983. Check-list of North American Birds (sixth edition). Washington, D.C.

Avian Powerline Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, California. p. 207.

Barbour, R.W. and W.H. Davis. 1969. Bats of America. The University of Kentucky Press. p. 286.

Barlow, J.C., Leckie, S.N. and Baril, C.T. 1999. Gray Vireo (Vireo vicinior): The Birds of North America Online (A. Poole, ed.), doi:10.2173/bna.447. Cornell University Lab of Ornithology. Retrieved from the Birds of North America Online. http://bna.birds.cornell.edu/bna/species/447. Accessed April 16, 2010.

Bates, C. 2006. Burrowing Owl (Athene cunicularia). In The Draft Desert Bird Conservation Plan: A Strategy for Reversing the Decline of Desert-Associated Birds in California. California Partners in Flight.

Beaman, K.R. and J.E. Lovich. 2007. A History of Gila Monster (Heloderma suspectum cinctum) Records from California with Comments on Factors Affecting their Distribution. Bulletin Southern California Academy of Sciences. pp. 39–58.

Beck, D.D. 2005. Biology of Gila Monsters and Beaded Lizards. University of California Press, Berkeley. p. 247.

Benson, L. 1982. The Cacti of the United States and Canada. Stanford University Press, Stanford, California. p. 1044.

Brennan, T.C. and A.T. Holycross. 2006. Amphibians and Reptiles in Arizona. Arizona Game and Fish Department. Phoenix, AZ. p. 150.

Brown, D.E. and N.B. Carmony. 1991. Gila Monster Facts and Folklore of America's Aztec Lizard. High Lonesome Books, Silver City, NM. p. 130.

Brown, P.E., R.D. Berry and C. Brown. 1993. Bats and Mines: Finding Solutions. In Bats Magazine, Volume 11, No. 2. Bats Conservation International. Austin, Texas.

Bureau of Land Management (BLM), United States Department of the Interior. 1980. California Desert Conservation Area Plan. p. 144. Riverside, California.

_____. 2001. Restoration Plan for Energy Projects in the Las Vegas Field Office. Prepared by Las Vegas Field Office and Native Resources.

_____. 2002a. Record of Decision for Approved Northern and Eastern Mojave Desert Management Plan. Bureau of Land Management, California Desert District Office, Moreno Valley, California. 15p.

_____. 2002b. Final Environmental Impact Statement: Final California Desert Conservation Area Plan Amendments for the Northern and Eastern Mojave Planning Area. Bureau of Land Management, California Desert District Office, Moreno Valley, California. p. 15.

_____. 2009a. Wee Thump Wilderness Fact Sheet. Bureau of Land Management, Las Vegas Field Office, Las Vegas, NV. http://www.nv.blm.gov/vegas/WAs/index.htm. Las Vegas BLM Wilderness Areas. Accessed November 15, 2009.

_____. 2009b. South McCullough Wilderness Area. Bureau of Land Management, Las Vegas, NV. http://www.nv.blm.gov/vegas/WAs/index.htm. Las Vegas BLM Wilderness Areas. Accessed November 15, 2009.

_____. 2010. California Desert Conservation Area Plan Amendment / Final Environmental Impact Statement for Ivanpah Solar Electric Generating System. FEIS-10-31. BLM Needles Field Office, Needles, California. July 2010.

Bat Conservation International (BCI). 2009. Species and Profiles. http://www.batcon.org/index.php/allaboutbats/speciesprofiles.html?country=43&state=all&family=all. Accessed November 2009.

Burroughs, Michael. 2009. Biologist. United States Fish and Wildlife Service Las Vegas Field Office, Las Vegas, NV. Phone call with Jennifer Siu, Ecology and Environment, on November 3.

Calflora. 2008. Information on California Plants for Education, Research and Conservation. The Calflora Database. http://www.calflora.org. Accessed April 16, 2010.

Calflora. 2009. Calflora taxon report for Borrrego milkvetch. http://www.calflora.org/cgi-bin/species_query.cgi?wheretaxon=Astragalus+lentiginosus+var.+borreganus. Accessed December 17, 2009.

Calflora. 2010. Information on California Plants for Education, Research, and Conservation. Berkley, California: The California Database. http://www.calflora.org. Accessed April 16, 2010.

California Burrowing Owl Consortium (CBOC). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Alviso, California.

California Department of Fish and Game (CDFG). 1986. Mammalian Species of Special Concern in California, American Badger. Habitat Conservation Planning Branch. http://www.dfg.ca.gov/wildlife/species/publications/mammal_ssc.html#a66. Accessed April 16, 2010.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

California Invasive Plant Council (CIPC). 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02, Berkeley, CA.

_____. 1995. CDFG Memorandum (accepting California Burrowing Owl Consortium protocol): Staff Report on Burrowing Owl Protocol. Sacramento, CA. October 17.

_____. 2008a. Habitat Conservation Branch. Natural Community Conservation Planning. http://www.dfg.ca.gov/habcon/nccp/status.html. Accessed November 10, 2009.

_____. 2008b. State and Federally Listed Endangered and Threatened Animals of California. May 2008. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEAnimals.pdf. Accessed November 10, 2009.

California Energy Commission (CEC). 2008. Ivanpah Solar Electric Generating System. Application for Certification (07-AFC-5) San Bernardino County. Preliminary Staff Assessment.

California Invasive Plant Inventory (CIPI). 2006. Cal-IPC Publication 2006-02. http://www.cal-ipc.org. Accessed April 16, 2010.

California Native Plant Society (CNPS). 2001. Inventory of Rare and Endangered Plants of California (sixth edition). Rare Plant Scientific Advisory Committee. David P. Tibor (convening editor). Sacramento, CA. p. 388.

California Natural Diversity Database (CNDDB). 2008. RareFind Version 3.1.1. Commercial Version, June 29.

~~Clark County Department of Comprehensive Planning. 2000. Final Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada. Las Vega, Nevada.~~

Charters, M.L. 2008. Wildflowers and Other Plants of Southern California. http://www.calflora.net/bloomingplants/index.html. Accessed April 16, 2010.

Chebes, L. 2002. Chaetodipus penicillatus, Animal Diversity Web. http://animaldiversity.ummz.umich.edu/site/accounts/information/Chaetodipus_penicillatus.html. Accessed April 16, 2010.

City of Boulder City. 1994. Interlocal Agreement for Sale and Grant of a Conservation Easement. July. Approved by City Council Resolution No. 2457 on September 27, 1994. Boulder City, CA.

Chu, Miyoko and Glenn Walsberg. 1999. Phainopepla (Phainopepla nitens), the Birds of North America Online (A. Poole, ed.). Cornell University Lab of Ornithology. Retrieved from the Birds of North America Online. http://bna.birds.cornell.edu/bna/species/415. Accessed April 16, 2010.

Clark County, Nevada. 2007. Boulder City Conservation Easement. Clark County Air Quality and Environmental Management, Desert Conservation Program. http://www.accessclarkcounty.com/depts/daqem/epd/dcp/Pages/dcp_bcce.aspx. Accessed August 2010.

Clark County Department of Comprehensive Planning. 2000. Final Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada. Las Vegas, Nevada.

Cummings, P. 2002. Personal communication between Southern California Edison and Pat Cummings, Nevada Department of Wildlife. October 23.

Dawson, J.W. 1998. Prairie Falcon. In Glinski, R.L. (ed). The Raptors of Arizona. The University of Arizona Press. Tucson, AZ. pp. p. 133–135 and 220.

Dechant, J.A., M.L. Sondreal, D.H. Johnson, L.D. Igl, C.M. Goldade, P.A. Rabie and B.R. Euliss. 1999 (Revised 2001). Effects of Management Practices on Grassland Birds: Burrowing Owl. Northern Prairie Wildlife Research Center, Jamestown, ND. p. 33.

Degenhardt, W.G., C.W. Painter and A.H. Price. 1996. Amphibians and Reptiles of New Mexico. University of New Mexico Press, Albuquerque, New Mexico. p. 431.

Desert Tortoise Council. 1994 (Revised 1999). Guidelines for Handling Desert Tortoise during Construction Projects. Edward L. LaRue, Jr. (ed.). Wrightwood, California. p. 19.

Dobkin, D. and S. Granholm. 2005. LeConte's Thrasher. California Wildlife Habitat Relationships System. http://www.dfg.ca.gov./biogeodata/cwhr/cawildlife.aspx. Accessed April 16, 2010.

eFlora 2009. Species accounts for small-flowered androstephium, Borrego milkvetch, and Clark Mountain buckwheat. Available http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242101420. Accessed December 17, 2009.

Ehrlich, P.R., D.S. Dobkin and D. Wheye. 1992. Birds in Jeopardy. Stanford University Press, Stanford, CA. p. 259.

_____. 1988. The Birder's Handbook: A Field Guide to the Natural History of North American birds. Simon and Schuster, Inc., New York. p. 785.

EPG, Inc. 2009. Eldorado–Ivanpah Transmission Project Biological Technical Report. Prepared for Southern California Edison. May.

_____. 2010. Eldorado-Ivanpah Transmission Project 2010 Raptor Survey. Prepared for Southern California Edison, May 2010.

Epple, A.O. and L.E. Epple. 1995. A Field Guide to the Plants of Arizona. LewAnn Publishing Co., Mesa, AZ. p. 347.

Federal Register. 1990. Rules and regulations. Department of the Interior. Fish and Wildlife Service. 50 CFR Part 17, RIN 1018-AB35. Endangered and Threatened Wildlife and Plants: Determination of threatened status for the Mojave population of the desert tortoise. Vol. 55, no. 63, pp. 12178-12191, April 2.

Floyd, T., C.S. Elphick, C. Graham, K. Mack, R.G. Elston, E.M. Ammon and J.D. Boone. 2007. Atlas of the Breeding Birds of Nevada. p. 581.

Glinski, R. L., Ed. 1998. The Raptors of Arizona. The University of Arizona Press. p. 220.

Gould, F.W. 1951. Grasses of the Southwestern United States. The University of Arizona Press, Tucson, AZ. p. 343.

Gucker, Corey L. 2005. Acacia greggii. In Fire Effects Information System. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). http://www.fs.fed.us/database/feis. Accessed April 16, 2010.

Harvey, M.J., J.S. Altenbach and T.L. Best. 1999. Bats of the United States. Arkansas Game and Fish Commission. p. 64.

Hjertaas, D., S. Brechtel, K. De Smet, O. Dyer, E. Haug, G. Holroyd, P. James and J. Schmutz. 1995. National Recovery Plan for the Burrowing Owl (Report No. 13). Ottawa, Recovery of Nationally Endangered Wildlife Committee. p. 33.

Hoffmeister, D.F. 1986. Mammals of Arizona. The University of Arizona Press, Tucson, Arizona. p. 602.

Institute for Bird Populations. 2008. Spring 2008 Newsletter.

Ivanyi, C., J. Perry, T.R. Van Devender and H. Lawler. 2000. Gila Monster (Heloderma suspectum): Species Account. pp. 551–552 in Phillips, S.J., and P. Wentworth Comus (eds.). A Natural History of the Sonoran Desert. Jepson. 2008. Jepson Online Interchange: California Floristics. University of California, Berkeley. http://ucjeps.berkeley.edu/interchange.html. Accessed April 16, 2010.

Karl, A.E. 2009. Eldorado–Transmission Project Desert Tortoise Survey of the Proposed Route. Prepared for Southern California Edison. May.

Karl, A.E. 2010. Draft Eldorado–Transmission Project Desert Tortoise Surveys. Prepared for Southern California Edison.

Kearney, T.H. and R.H. Peebles. 1960. Arizona Flora. The University of California Press, Berkeley, Los Angeles, California. p. 1085.

Keep Milpas Rural. 2009. Current Plant Protection Laws. http://keepmilpasrural.com/currentplantprotectionlaws.html. Accessed May 14, 2009.

Kokos, Sonja. 2009. Biologist. Clark County Environmental Planning, NV. Phone call with Jennifer Siu, Ecology and Environment, on November 9.

Gartland, R. 2006. Scott's Oriole (Icterus parisorum). In The Draft Desert Bird Conservation Plan: A Strategy for Reversing the Decline of Desert-Associated Birds in California. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/desert.html.

Hickman, J.C. 1993. The Jepson manual: Higher plants of California. University of California Press. Berkeley, CA. p. 1400.

Lowe, C.H., C.R. Schwalbe and T.B. Johnson. 1986. The Venomous Reptiles of Arizona. Arizona Game and Fish Department.

MacDonald, C.R. 2006. Wild Burros of the American West: A Critical Analysis of the National Status of Wild Burros on Public Lands.

MacMahon, J.A. 1985. Deserts. New York: Alfred A. Knopf, Inc. Audubon Society Nature Guide.

National Geographic Society (NGS). 2002. Field Guide to Birds of North America (fourth edition). Washington, D.C. p. 480.

NatureServe. 2008. NatureServe Explorer: An Online Encyclopedia of Life. Version 7.0. NatureServe, Arlington, Virginia. http://www.natureserve.org/explorer.

Nevada Department of Agriculture: Plant Industry Division. 2005. Noxious Weed List, as updated on 6-10-10. Nevada Department of Noxious Weeds. http://agri.nv.gov/nwac/PLANT_NoxWeedList.htm. Accessed September 02, 2010.

Nevada Department of Wildlife (NDOW). 2005. Gila Monster Protocol for Minimizing Impacts in the Construction Site.

_____. 2007. Gila Monster Status, Identification and Reporting Protocol for Observations. November 1, 2007. NDOW Southern Region, Las Vegas, Nevada.

_____. 2010. Golden Eagle Nest Sites, GIS data received by Ecology and Environment, Inc. from NDOW Southern Region, Las Vegas, Nevada.

Nevada Division of Environmental Protection (NDEP), Bureau of Water Quality. 2009. Description of CWA Section 401 permitting. http://ndep.nv.gov/bwqp/401cert.htm. Accessed November 10, 2009.

Nevada Natural Heritage Program (NNHP). 2001a. Rare Plant Fact Sheet for the Rosy Two-Toned Beardtongue, Penstemon bicolor ssp. roseus.

_____. 2001b. Rare Plant Fact Sheet for the White Bearpoppy, Arctomecon merriamii.

_____. 2001c. Rare Plant Fact Sheet for the White-Margined Beardtongue, Penstemon albomarginatus.

_____. 2004. Detailed Rare Animal List. http://heritage.nv.gov/animlbig.htm. Accessed April 16, 2010.

Nowak, E.M. 2005. Why did the Gila monster cross the road? Basic research at Tonto National Monument: 2004 annual report (04-15) and 2005 initial progress report (05-12). Submitted to Western National Parks Association, U.S. Geological Survey, Colorado Plateau Research Station.

Patton, A. and K. Francl. 2008. Vulpes macrotis. Animal Diversity Web. http://animaldiversity.ummz.umich.edu/site/accounts/information/Vulpes_macrotis.html. Accessed April 16, 2010.

Phillips, A., J. Marshall and G. Monson. 1964. The Birds of Arizona. The University of Arizona Press, Tucson. p. 212.

California Partners in Flight. 2009. http://www.prbo.org/calpif. Accessed April 16, 2010.

Remsen, J.V., Jr. 1978. Bird Species of Special Concern in California, LeConte's Thrasher. California Department of Fish and Game, Habitat Conservation and Planning Branch.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, California. p. 471.

Schmidly, D.J. 1991. The Bats of Texas. Texas A & M University Press, College Station, Texas. p. 188.

Schram, B. 1998. A Birder's Guide to Southern California. American Birding Association, Inc. Colorado Springs, Colorado. p. 334.

Sherburn. R. 1972. Food Habits of Sauromalus Obesus on the Nevada Test Site. Journal of Herpetology, Volume 6, No. 2. pp. 142–144.

Shuford, W.D. and T. Gardali. (eds.). 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento. p. 450.

Small, A. 1977. The Birds of California. Collier Books, New York. p. 310.

Southern California Edison (SCE). 2010. Eldorado to Ivanpah Transmission Project, Biological Assessment. Prepared for the USFWS, Bureau of Land Management, Las Vegas Field Office. August 7, 2010.

Steenhof, Karen. 1998. Prairie Falcon (Falco mexicanus), The Birds of North America Online (A. Poole, Ed.). Cornell University Lab of Ornithology. Retrieved from the Birds of North America Online at http://bna.birds.cornell.edu/bna/species/346. Accessed November 10, 2009.

U.S. Department of Agriculture (USDA). 2009a. Invasive and Noxious Weeds, USDA Plants. http://plants.usda.gov/java/noxiousDriver. Accessed November 10, 2009.

_____. 2009b. USDA Species profile for small flowered androstephium. http://plants.usda.gov/java/nameSearch?keywordquery=ANBR4&mode=symbol. Accessed December 17, 2009.

_____. 2009c. USDA species profiles for Borrego milkvetch and Spring Mountains milkvetch. http://plants.usda.gov/java/county?state_name=California&statefips=06&symbol=ASLEB. Accessed December 17, 2009.

_____. 2009d. USDA species profile for Clark Mountain Buckwheat. http://plants.usda.gov/java/county?state_name=California&statefips=09&symbol=ERGLCL. Accessed December 17, 2009.

United States Fish and Wildlife Service (USFWS). 1994. Desert Tortoise (Mojave Population) Recovery Plan. Portland, Oregon. p.73 and appendices.

_____. 1999. Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances. Salt Lake City, Utah.

_____. 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii). USFWS California and Nevada Region, Sacramento, California. p. 209.

_____. 2009a. Migratory Birds and Habitat Programs. http://www.fws.gov/pacific/migratorybirds/mbta.htm. Accessed November 10, 2009.

_____. 2009b. Federal Register. Vol. 74, No. 175, September 11, 2009/Rules and Regulations. Eagle Permits: Take Necessary To Protect Interests in Particular Localities. pp. 46836–46879.

National Parks Service (NPS), United States Department of the Interior. 2009. Maps of Mojave National Preserve. http://www.nps.gov/moja/planyourvisit/maps.htm. Accessed November 10, 2009.

San Bernardino County. 2007. San Bernardino County General Plan. Prepared by URS Corporation. Santa Ana, CA.

State of California. 2008. Bay-Delta Conservation Plan: Appendix A.6, Western Burrowing Owl.

Smith, F.J. 2001. Current Knowledge and Conservation Status of Penstemon albomarginatus M.E. Jones (Scrophulariaceae), the with-margined beardtongue. Status Report prepared for the Nevada Natural Heritage Program and the U.S. Fish and Wildlife Service.

_____. 2005. Current Knowledge and Conservation Status of Penstemon Bicolor (Brandegee) Clokey & Keck (Plantaginaceae), the two-tone beardtongue. Status report for Nevada Power and the U.S. Fish and Wildlife Service, Nevada State Office. Updated March 2006 by J.D. Morefield. p. 30.

Stebbins, R.C. 2003. Western Reptiles and Amphibians. Houghton-Mifflin, Boston, New York. p. 533.

Terres, J.K. 1980. The Audubon Society Encyclopedia of North American Birds. Alfred A. Knopf, New York. p. 1109.

U.S. Department of Agriculture. 2008. The Plants Database. National Plant Data Center, Baton Rouge, Louisiana 70874-4490 USA. July 9. http://plants.usda.gov.

U.S. Fish and Wildlife Service (USFWS). 1992. Field Survey Protocol for any Federal Action that May Occur within the Range of the Desert Tortoise. January.

_____. 2009. Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.

_____. 2010. Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations. Ecological Services, U.S. Fish and Wildlife Service, Carlsbad, California. February 2010.

Wainscott, Sue. 2009. Adaptive Management Coordinator. Clark County Desert Conservation Program, NA. Phone call with Jennifer Siu, Ecology and Environment, November 10.

Western Bat Working Group (WBWG). 2005. Species Account for Macrotus Californicus: California Leaf-Nosed Bat.

Wehausen, J.D. 2006. Nelson Bighorn Sheep (Ovis canadensis nelsoni). In Bureau of Land Management West Mojave Plan Species Accounts. p. 9. http://www.blm.Gov/ca/st/en/fo/cdd/wemo.html. Accessed November 11, 2009.

Wheeler, B.K. 2003. Raptors of Western North America. Princeton University Press. Princeton, New Jersey. p. 544.

3.5 Cultural Resources

Becker, M. 2010. Eldorado–Ivanpah Supplemental Survey for Portions in San Bernardino County, California, and Clark County, Nevada. BLM Cultural Resources Report: 5-2655.

Chambers Group. 2009. A Class III Cultural Resources Inventory, Southern California Edison, Eldorado–Ivanpah Transmission Project, San Bernardino County, California and Clark County, Nevada (Confidential). Prepared for Southern California Edison. BLM Report # 5-2613 (Nevada). Report on file at the San Bernardino Archaeological Information Center, Redlands, California and the Harry Reid Center for Environmental Studies, Las Vegas, Nevada.

CH2M Hill and J. Carrier. 2008. Data Response Set 1B (tn: 45305, California Energy Commission Docket Unit). February 11.

Fergusson, A. 2007. Cultural Resources Inventory Report for Ivanpah Solar Electric Generating System, San Bernardino County, California. CH2M Hill: Santa Ana, CA.

Helton, C., N. Lawson, and G. Spaulding. 2008. Ridgeline Reconnaissance Survey—Preliminary Summary of Field Results. Confidential technical memorandum prepared for J. Carrier, CH2M Hill. CH2M Hill Project No. 357891. September 17.

Hill, J. 2008. Data Response Set 1B (California Energy Commission Docket Unit).

Lawson, N., C. Helton, and G. Spaulding. 2008. Confidential Attachment DR41-1, Technical Memorandum, Ivanpah Solar Electric Generating System (tn: 49437). In Summary Report of Archival Research and Field Studies for Northwestern Ivanpah Valley Ridgeline Survey and Investigations of Site ISEGS-01. December 5.

Longwell, C.L., E.H. Pampeyan, B. Bower and R.J. Roberts. 1965. Geology and Mineral Deposits of Clark County, Nevada. Nevada Bureau of Mines and Geology Bulletin 62.

Sander, J.K., J.J. Auck, D.M. Smith, and C.E. Drover. 2009. A Class III Cultural Resources Inventory of Southern California Edison Eldorado–Ivanpah Transmission Project San Bernardino County, California and Clark County, Nevada. Chambers Group: Redlands, CA.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. Appendix F, Geology, Mineral Resources, and Soils Technical Report. May 28.

Sutton, M.Q. 1996. The Current Status of Archaeological Research in the Mojave Desert. Journal of California and Great Basin Anthropology 18(2). p. 221-257.

Sutton, M.Q., M.E. Basgall, J.K. Gardner, and M.W. Allen. 2007. Advances in Understanding Mojave Desert Prehistory. In T.L. Jones and K.A. Klar (eds.), California Prehistory: Colonization, Culture, and Complexity. Altamira Press, NY.

Thompson, A.J. 2010. Evaluation of 26CK2633 in support of Eldorado – Ivanpah Transmission Line Project. Letter report on file at BLM Las Vegas Field Office

3.6 Geology Soils Minerals and Paleontology

Anderson, R.S., M.J. Power, S.J. Smith, K.B. Springer and E. Scott. 2002. Paleoecology of a Middle Wisconsin Deposit from Southern California. Quaternary Research 58(3). pp. 310–317.

Bureau of Land Management (BLM). 2007. Potential Fossil Yield Classification for Paleontological Resources on Public Land. Instruction Memorandum No. 2008-009.

California Building Code (CBC). 2007. State of California.

California Division of Mines and Geology (CDMG). 1953. California Journal of Mines and Geology. State of California Department of Natural Resources. Division of Mines. Volume 49, Numbers 1 and 2, January–April. pp. 1–259.

_____. 1961. Geologic Map of California: Kingman Sheet. Scale 1:250,000.

_____. 1994. Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions. Scale: 1:750,000.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

California Geological Survey (CGS). 2002. California Geomorphic Provinces, Note 36. December.

California Integrated Seismic Network (CISN). 2008. Landers M7.3 earthquake, peak horizontal ground acceleration. http://www.cisn.org/shakemap/sc/shake/Landers/pga.html. Accessed November 28, 2008.

Dames and Moore. 1992. Kern River Pipeline, Paleontological Resources, Final Technical Report, Nevada Portion prepared for the Kern River Gas Transmission Company, Salt Lake City, Utah. Prepared by Dames and Moore, Phoenix, Arizona.

Force, C. 1991. Late Pleistocene–Early Holocene Woodrat (Neotoma sp.) Cental Remains from Kokoweef Cave, San Bernardino County, California. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 104–106.

Fowler, T.K. and Calzia, J.P. 1999. Kingston Range Detachment Fault, Southeastern Death Valley Region, California: Relation to Tertiary Deposits and Reconstruction of Initial Dip. Geological Society of America Special Paper 333. pp. 245-257.

Gans, W. T.1970. The detailed stratigraphy of the Goodsprings Dolomite, southeastern Nevada-California. Unpublished Ph.D. dissertation, Rice University, Houston, Texas

_____1974. Correlation and redefinition of the Goodsprings Dolomite, Southern Nevada and Eastern California. Geological Society of America Bulletin 85, Number 2, p.189-200.

Goodwin, H.T., and R. E. Reynolds. 1989. Late Quaternary Sciuridae from Kokoweef Cave, San Bernardino County, California. Southern California Academy of Sciences Bulletin 88(1): 21-32.

Gromney, J. 2003. The Morphology of Nothrotheriops Shastensis. In R. E. Reynolds (ed.), Land of Lost Lakes: The 2003 Desert Symposium Field Trip with Abstracts from the 2003 Desert Symposium. California State University Desert Studies Consortium in Association with LSA Associates, Inc. p. 64.

Guest, B., N. Niemi and B. Wernicke. 2007. Stateline Fault System: A New Component of the Miocene-Quaternary Eastern California Shear Zone. Abstract Geological Society of America Bulletin, Volume 119, Issue 11 (November). pp. 1337–1347.

Hewitt, D.F. 1931. Geology and Ore Deposits of the Goodsprings Quadrangle, Nevada. U. S. Geological Survey Professional Paper. pp. 162–172.

Jefferson, G.T. 1989. Late Pleistocene and Earliest Holocene Fossil Localities and Vertebrate Taxa from the Western Mojave Desert. In J. Reynolds (ed.), The West-Central Mojave Desert: Quaternary Studies Between Kramer and Afton Canyon. Redlands, SBCM Association Special Publication. pp. 27–40.

_____. 1991a. A Catalogue of Late Quaternary Vertebrates from California: Part One, Nonmarine Lower Vertebrate and Avian Taxa. Natural History Museum of Los Angeles County. Technical Report Number 7. pp. 1–129.

_____. 1991b. A Catalogue of Late Quaternary Vertebrates from California: Part Two, Mammals. Natural History Museum of Los Angeles County. Technical Report Number 7. pp. 1–129.

Jefferson, G. T., McDonald, H. G., and S. D. Livingston. 2004. Catalogue of Late Quaternary and Holocene Fossil Vertebrates from Nevada. Nevada State Museum, Occasional Papers, Number 6. p. 85.

Jennings, C.W. 1961. Geologic Map of California, Kingman Sheet (1:250,000 scale). California Division of Mines and Geology.

Langenheim, R. L. Jr., Carss, B. W., Kennerly, J. B., McClutcheon, V. A., and R. H. Waines. 1962. Paleozoic Section in Arrow Canyon Range, Clark County, Nevada. American Association of Petroleum Geologists Bulletin, Volume 46. pp. 592–609.

Longwell, C.L., E.H. Pampeyan, B. Bower and R.J. Roberts. 1965. Geology and Mineral Deposits of Clark County, Nevada. Nevada Bureau of Mines and Geology Bulletin 62.

Mead, J. I., and L. K. Murray. 1991. Late Pleistocene Vertebrates from the Potosi Mountain Packrat Midden, Spring Range, Nevada. Crossing the Borders: Quaternary studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 124–126.

Mifflin, M. D. and M. M. Wheat. 1979. Pluvial Lakes and Estimated Pluvial Climates of Nevada. Nevada Bureau of Mines and Geology Bulletin 94.

Miller, D.M., Miller, R.J., Nielson, J.E., Wilshire, H.G., Howard, K.A., and Stone, P. 1999. Preliminary Geologic Map of the East Mojave National Scenic Area, California. U.S. Department of the Interior. U.S. Geological Survey. Open-File Report 91-435.

Moore, M. B. 1991. A Mississippian Invertebrate Assemblage from the Monte Cristo Limestone Near Stateline, Nevada. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 113–114.

Museum of Paleontology, University of California, Berkeley. 2009. Results of online paleontologic records search conducted by the Sanberg Group, Inc., Whitter, California. http://www.ucmp.berkeley.edu/science/collections.php. Accessed November 21, 2009.

_____. 2010. Results of online paleontologic records search conducted in August, 2010 housed at the Cogstone Resource Management Inc., Orange, California. http.//www.ucmp.berkeley.edu/science/collections.php. Accessed September 2010.

Nevada Bureau of Mines and Geology (NMBG). 2006. Surficial Geologic Map of the Ivanpah Valley Area, Clark County, Nevada. Map 156. Scale 1:50,000.

National Resources Conservation Service (NRCS). 2008. Official Soils Series Descriptions. http://soils.usda.gov/technical/classification/osd/index.html. Accessed November 28, 2008.

Norris, R.M. and R.W. Webb. 1990. Geology of California. Second Edition. John Wiley and Sons. New York, NY.

Reynolds, R.E. 1986. Paleontologic Monitoring and Salvage, Intermountain Power Project, Intermountain-Adelanto Bipole/Transmission Line, California Section. Prepared for Applied Conservation Technology. p. 477.

Reynolds, S.F.B. 1989. Mid-Pleistocene Faunas of the West-Central Mojave Desert. In J. Reynolds (ed.), The West-Central Mojave Desert: Quaternary Studies Between Kramer and Afton Canyon. Redlands, SBCM Association Special Publication, pp. 44-50.

_____. 2006a. Way Out West: Preliminary Description and Comparison of Pterosaur Ichnites from the Mescal Range, Mojave Desert, California in Harris et. al (eds.), The Triassic-Jurassic Terrestrial Transition. New Mexico Museum of Natural History and Science Bulletin 37. pp. 226–231.

_____. 2006b. Way Out West: Jurassic Tracks on the Continental Margin in Harris et. al (eds.), The Triassic-Jurassic Terrestrial Transition. New Mexico Museum of Natural History and Science Bulletin 37. pp. 232–237.

Reynolds, R.E.., R.L. Reynolds and C.J. Bell. 1991a. The Devil Peak Sloth. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 115–116.

Reynolds, R.E., R.L. Reynolds, C.J. Bell, N.J. Czaplewski, H.T. Goodwin, J.I. Mead, and B. Roth. 1991b.The Kokoweef Cave Faunal Assemblage. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 97–103.

Reynolds, R.E., R.J. Reynolds, C.J. Bell, and B. Pitzer. 1991c. Vertebrate Remains from Antelope Cave, Mescal Range, San Bernardino County, California. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 107–109.

Reynolds, R. E., Mead, J. I. and R. L. Reynolds. 1991d. A Rancholabrean Fauna from the Las Vegas Formation, North Las Vegas, Nevada. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC 1991. pp. 140–146.

Reynolds, R.E. and R.L. Reynolds. 1991e.The Pleistocene Beneath Our Feet: Near-Surface Pleistocene Fossils in Inland Southern California Basins. In M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler (eds.), Inland Southern California: The Last 70 Million Years. Redlands, San Bernardino County Museum Special Publication 38(3&4). pp. 41–43.

San Bernardino County. 2007. San Bernardino General Plan: Safety Element. Prepared by URS Corporation. Santa Ana, CA.

Scott, E. 1997. A Review of Equus Conversidens in Southern California with a Report on a Second, Previously-Unrecognized Species of Pleistocene Small Horse from the Mojave Desert. Journal of Vertebrate Paleontology 17(3).c75A.

_____. 2008. Paleontology literature and records review, proposed Eldorado-Ivanpah Transmission line, California and Nevada. San Bernardino County Museum. Letter on file at The Sanberg Group, Whitter, California.

Scott, E., and S.M. Cox. 2002. Late Pleistocene Distribution of Bison in the Mojave Desert, Southern California, and Nevada. Journal of Vertebrate Paleontology 22(3). 104A–105A.

_____. 2008. Late Pleistocene Distribution of Bison (Mammalia; Artiodactyla) in the Mojave Desert of Southern California and Nevada. Geology and Vertebrate Paleontology of Western and Southern North America, Contributions in Honor of David P. Whistler (X. Wang and L.G. Barnes, eds.). Natural History Museum of Los Angeles County Science Series No. 41. pp. 359 –382

Scott, K. B. and S. Gust, 2010. Paleontological Resources Management Plan for the Eldorado-Ivanpah Tranmission Project, San Bernardino County, California and Clark County, Nevada. Prepared for Southern California Edison, Rosemead, CA by Cogstone Resource Management Inc., Orange, CA.

Society of Vertebrate Paleontology (SVP). 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources, Standard Guidelines: Society of Vertebrate Paleontology News Bulletin, Volume 163. pp. 22–27.

Springer, K.B. and E. Scott.1994. First Record of Late Pleistocene Vertebrates from the Domenigoni Valley, Riverside County, California. Journal of Vertebrate Paleontology 14 (3). 47A.

Springer, K.B., E. Scott, L.K. Murray, and W.G. Spaulding. 1998. Partial Skeleton of a Large Individual of Mammut Americanum from the Domenigoni Valley, Riverside County, California. Journal of Vertebrate Paleontology 18(3). 78A.

Springer, K.B., E. Scott, J.C. Sagebiel and K.M. Scott. 1999. A Late Pleistocene Lake Edge Vertebrate Assemblage from the Diamond Valley, Riverside County, California. Journal of Vertebrate Paleontology 19(3). 77A.

Springer, K. E., Scott, J.C. Sagebiel, and L.K. Murray. 2007. The Diamond Valley Lake Local Fauna: late Pleistocene vertebrates from inland southern California. Journal of Vertebrate Paleontology 27(3). 151A.

Stewart and Carlson. 1978. Geology Map of Nevada, U.S. Geologic Survey and Nevada Bureau of Mines and Geology. Scale 1:500,000.

Taylor, D. W. 1967. Late Pleistocene Molluscan Shells from the Tule Springs Area. In Wormington, H.M. and D. Ellis (eds.), Pleistocene Studies of the Southern Nevada. Nevada State Museum Anthropological Papers, Number 13. pp. 395–399.

U.S. Geological Survey (USGS). 2005. Preliminary Integrated Databases for the United States, Western States: California, Nevada, Arizona, and Washington. Open File report 2005-1305.

_____. 2006. Preliminary Surficial Geologic Map of the Mesquite Lake 30' X 60' Quadrangle, California and Nevada. Open-File Report 2006-1035.

_____. 2008a. National Seismic Hazards Maps, Peak Acceleration (%g) with 2% Probability of Exceedance in 50 Years. May. http://earthquake.usgs.gov/research/hazmaps/products_data/2008. Accessed November 28, 2008.

_____. 2008b. Historic United States Earthquakes. http://earthquake.usgs.gov/regional/states/historical_state.php. Accessed November 28, 2008.

_____. 2009. Mineral Resource Data System (California and Nevada data). http://tin.er.usgs.gov/mrds. Accessed January 12, 2010.

Waring, G. A. 1920. Ground water in Pahrump, Mesquite, and Ivanpah Valleys, Nevada and California. United States Geological Survey Professional Paper 450-C.

Whistler, D. P. 1991. Quien Sabe Cave, Middle to Late Holocene Fauna from Ivanpah Mountains, San Bernardino County, California. In J. Reynolds (ed.), Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. Redlands, SBCM Association Special Publication MDQRC. pp. 107–109.

Woodburne, M.O. 1991. The Cajon Valley. In Inland Southern California: The Last 70 Million Years, M.O. Woodburne, S.F.B. Reynolds, and D.P. Whistler (eds.). Redlands, San Bernardino County Museum Special Publication 38(3&4). pp. 41-43.

3.7 Hazards, Health, and Safety

Arcadis. 2009. Third Quarter 2009 Groundwater Monitoring Report New Ivanpah Evaporation Pond San Bernardino County, California Monitoring and Reporting Program No. 90-41 WDID No. 6B369003001 October 2009. http://geotracker.swrcb.ca.gov/profile_report.asp?global_id=L10007591063. Accessed March 31, 2010.

Bright Source Energy Partners (BSE). 2007. Application for Certification for the Ivanpah Solar Electric Generating System (ES062007009SAC/357891/072400001). October.

Cass, J. 2010. Lahontan Regional Water Quality Control Board. Telephone conversation with Louise Flynn, Ecology and Environment, Inc., regarding the Former Biogen Facility and Molycorp Mine. April 1.

Department of Health Services (DHS), California. 2002. An Evaluation of the Possible Risks from EMFs from Power Lines, Internal Wiring, Electrical Occupations, and Appliances. June 2002.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

California Department of Resources Recycling and Recovery (CalRecycle). 2010. Solid Waste Information System (SWIS): Search Results. http://www.calrecycle.ca.gov/SWFacilities/Directory/SearchList/List?COUNTY=San+Bernardino. Accessed September 9, 2010.

California Department of Toxic Substances Control (DSTC). 2009. EnviroStor database query. http://www.envirostor.dtsc.ca.gov/public. Accessed November 14, 2009.

_____. 2010. Chevron Mining, Inc., Molycorp (80001637). EnviroStor database query. http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80001637. Accessed March 30.

Clark County. 2005. Clark County Hazard Mitigation Plan. http://www.accessclarkcounty.com/depts/administrative_services/oem/Pages/plans.aspx. Accessed November 20, 2009.

Clark County. 2008. Hazardous Materials Emergency Response Plan. http://www.accessclarkcounty.com/depts/administrative_services/oem/Pages/plans.aspx. Accessed November 20, 2009.

Clark County Department of Aviation (CCDOA). 2006. Project Description and Justification: Proposal to Construct and Operate a New Supplemental Commercial Service Airport in the Ivanpah Valley. August 2006.

_____. 2009. Southern Nevada Supplemental Airport: Airport Layout Plan. December 30, 2009.

_____. 2010. Letter from Teresa Motley, CCDOA, to Maria Engel, Vanasse Hangen Brustlin. June 29, 2010.

Enertech Consultants.1985. AC Field Exposure Study Human Exposure to 60 Hz Electric Fields EPRI EA-3993.

~~Federal Aviation Administration (FAA) and Bureau of Land Management (BLM). n.d. Southern Nevada Supplemental Airport EIS: What's New. http://www.snvairporteis.com/new.asp. Accessed March 19, 2010.~~

FAA. 1993. Federal Aviation Regulations Part 77: Objections Affecting Navigable Airspace. (This edition replaces the existing loose-leaf Part 77 and its changes. This FAA publication of the basic Part 77, effective May 1, 1965, incorporates Amendments 77-1 through 77-11 with preambles.) March 1993.

Federal Emergency Management Agency (FEMA). n.d. Hazardous Materials. http://www.fema.gov/hazard/hazmat/index.shtm. Accessed March 2010.

Gauger, J.R. 1985. Household Appliance Magnetic Field Survey. Institute of Electrical and Electronics Engineers.

International Non-Iodizing Radiation Committee of the International Radiation Protection Association (INIRC-IRPA). 1998. Interim Guidelines on Limits of Exposure to 50/60 Hz Electric and Magnetic Fields. Health Physics. April.

Morgan, M.G. 1991. 60 Hz Electric and Magnetic Fields: An Overview of the Issues Carnegie Mellon University.

Nevada Division of Environmental Protection (NDEP), Bureau of Corrective Actions. 2010. Spill Reporting Hotline. http://ndep.nv.gov/bca/spil_rpt.htm. Accessed September 9, 2010.

Nevada Occupational Safety and Health Administration. 2000. Nevada State Plan. http://www.osha.gov/dcsp/osp/stateprogs/nevada.html. Accessed December 7, 2009.

Nevada Occupational Safety and Health Administration. 2000. Nevada Plan State Plan. http://www.osha.gov/dcsp/osp/stateprogs/nevada.html. Accessed December 7, 2009.

National Institute of Environmental Health Sciences (NIEHS). 1999. Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields (NIH Publication No. 99-4493). Research Triangle Park, NC.

Public Utilities Commission of Texas.1992. Health Effects of Exposure to Power Line Frequency Electric and Magnetic Fields.

Resource Concepts. Inc. (RCI) 2005. Nevada Community Wildfire Risk/Hazard. Assessment Project: Carson City. Prepared for the Nevada Fire Safe Council, Reno, Nevada.

San Bernardino County Fire Department. 2010. San Bernardino County Fire Hazards (map).

Severson et al. 1988. Acute Nonlymphocytic Leukemia and Residential Exposure to Power Frequency Magnetic Fields. American Journal of Epidemiology.

Silva et al.1988. Power Frequency Magnetic Fields in the Home (No. 88 WM.101-8). Institute of Electrical and Electronics Engineers.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

Southern California Edison (SCE). 2010. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

Southern Nevada Regional Heliport. n.d. Southern Nevada Regional Heliport. http://www.ricondoprojects.com/Heliport/background.html. Accessed March 30, 2010.

State Water Resources Control Board (SWRCB), California. 2008. GeoTracker. https://geotracker.waterboards.ca.gov/. Accessed November 2009.

~~_____.State Water Resources Control Board (SWRCB), California~~. 2010. State Water Resources Control Board. http://www.swrcb.ca.gov/ust. Accessed April 14, 2010.

Wertheimer, N. and Leeper, E. 1979. Electrical Wiring Configurations and Childhood Cancer. American Journal of Epidemiology 109(3). pp. 273–284.

World Health Organization (WHO). 1984. Extremely Low Frequency Fields. Environmental Health Criteria 35.

_____. 1987. Magnetic Fields. Environmental Health Criteria 69.

_____. 2001: An Evaluation of the Possible Risks from EMFs from Power Lines, Internal Wiring, Electrical Occupations, and Appliances.~~, were p~~Published ~~in~~ June 2002.

United States Environmental Protection Agency (U.S. EPA). 2008a. About EPA. http://www.epa.gov/epahome/aboutepa.htm. Accessed July 19, 2010.

_____. 2008b. Land Disposal Restrictions – Wastes. http://www.epa.gov/epawaste/hazard/tsd/ldr/index.htm. Accessed July 6, 2010.

_____. 2010a. Hazardous Waste Characteristics A User-Friendly Reference Document. March 3, 2010. http://www.epa.gov/epawaste/hazard/refdocs.htm. Accessed March 15, 2010.

_____. 2010b. Toxics Release Inventory. Envirofact Report: Molycorp Minerals LLC Mountain Pass Mine. http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=92366MLYCRI15AN. Accessed March 25, 2010.

_____. 2010c. RCRA Corrective Action Site Progress Profile. "Crescent Peak Road Complaint." http://iaspub.epa.gov/Cleanups/RcraProfile.jsp?handler_id=NVU005000016. Accessed September 9, 2010.

_____. 2010d. RCRA Corrective Action Site Progress Profile. "Nevada Solar One." http://iaspub.epa.gov/Cleanups/RcraProfile.jsp?handler_id=NVR000081851. Accessed September 9, 2010.

_____. 2010e. RCRA Corrective Action Site Progress Profile. "So Nevada Correctional Ctr." http://iaspub.epa.gov/Cleanups/RcraProfile.jsp?handler_id=NV0000139899. Accessed September 9, 2010.

3.8 Hydrology and Water Quality

Blakely, R.J., Langenheim, V.E., Ponce, D.A. and Dixon, G.L. 2000. Aeromagnetic Survey of the Amargosa Desert, Nevada and California: A Tool for Understanding Near-Surface Geology and Hydrology. U.S. Geological Survey Open-File Report 00–188.

California Department of Health Services (CDHS). 2001. Drinking Water Source Assessments for Moly Corp Inc, San Bernardino County. Shadow Valley and Ivanpah Well numbers 5, 6, 7, 8, and 9.

California Department of Water Resources (CDWR). 2004. Ivanpah Valley Groundwater Basin, California's Groundwater Bulletin 118. Last updated February 27.

Clark County. 2008. Area-Wide Water Quality Management Plan Executive Summary, Clark County, NV. Preliminary Draft, June.

Clark County Regional Flood Control District. 2007. Uniform Regulations for the Control of Drainage. Clark County, Nevada. December 13.

Clark County Stormwater Quality Management Committee. 2009. Federal and State Stormwater Regulations. http://www.lvstormwater.com/regs.htm. Accessed March 19, 2009.

Department of Air Quality and Environmental Management (DAQEM). 2009. Area-Wide Water Quality Management Plan, Clark County, NV.

Heggeness, John. 2008. Nevada Division of Environmental Protection. Phone conversation with Jennifer Siu, Ecology and Environment, Inc. October 23.

House, K.P. 2005. Using Geology to Improve Flood Hazard Management on Alluvial Fans: An Example from Laughlin, Nevada. Journal of the American Water Resources Association. December. pp 1431–1447.

Nevada Division of Environmental Protection (NDEP). 2008. Fact Sheet Pursuant to NAC 445A.236 for Reliant Energy Wholesale Generation LLC (Permittee) Bighorn Generating Station, Las Vegas, Nevada. Permit NEV2002500.

Nevada Division of Water Resources (NDWR). 2009. Hydrographic Area Summary of Ivanpah Valley, Jean Lake Valley, Eldorado Valley, and Piute Valley. http://water.nv.gov/WaterPlanning/UGactive/index.cfm. Accessed December 2, 2009.

Nevada Department of Air Quality and Environment Management (NDAQEM). 2009. Area-Wide Water quality Management Plan.

Nevada Department of Conservation and Natural Resources (NDCNR). n.d. Division of Water Resources. List of Clark County's Hydrographic Basins. http://water.nv.gov/WaterPlanning/cty-bsn/cl_basin.cfm. Accessed December 2, 2009.

Planert, M and J. Williams. 1995. Groundwater Atlas of the United States for California and Nevada. U.S. Geological Survey, Publication No. HA 730-B.

Reading H.G. (ed.). 1980. Sedimentary Depositional Environments. Elsevier.

San Bernardino County. 2007. San Bernardino County General Plan. Prepared by URS Corporation. Santa Ana, CA.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

U.S. Environmental Protection Agency (U.S. EPA). 2008. Sole Source Aquifer Protection Program. http://cfpub.epa.gov/safewater/sourcewater/sourcewater.cfm?action=SSA. Accessed December 2, 2009.

U.S. Geological Survey (USGS). 2009. Long-Term Groundwater Data Network. Site 354708115212501. http://nwis.waterdata.usgs.gov/nv/nwis/nwisman/?site_no=354708115212501&agency_cd=USGShttp://groundwaterwatch.usgs.gov. Accessed December 2, 2009July 7, 2010.

3.9 Land Use

Bartz, Everett. 2009. Wild Horse and Burro Specialist. Bureau of Land Management, Needles, CA. Phone call with Conor Doyle, Ecology and Environment, Inc., San Francisco, CA.

Boulder City and Clark County. 19941995. Interlocal Agreement for Sale and Grant of a Conservation Easement. July 18.

_____. 2010. Amendment to the Conservation Easement Grant (Agreement No. 94-A313A). August 24.

Bureau of Land Management (BLM). 1980. California Desert Conservation Area Plan.

_____. 1994. Stateline Supplemental Resource Management Plan/Final Draft EIS. Las Vegas, NV.

_____. 1998. Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement. Las Vegas Field Office. Las Vegas, NV.

_____. 2009a. Frequently Asked Questions. Last updated October 20, 2009. http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS/wilderness2/Wilderness_FAQ.html. Accessed November 16.

_____. 2009b. Ivanpah Dry Lake. September 29.. http://www.blm.gov/ca/st/en/fo/needles/ivanpah.html. Accessed November 16, 2009.

_____. 2009c. Nevada AUMs Authorized 1971-2008. July 24. http://www.blm.gov/nv/st/en/prog/grazing/animal_unit_months.html. Accessed November 16, 2009.

_____. n.d. What is an Area of Critical Environmental Concern. http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning_general.Par.2918.File.dat/ACEC_SRMA_info.pdf. Accessed November 16, 2009.

BLM and Federal Aviation Administration (FAA). n.d. About the Project. http://www.snvairporteis.com/about.asp. Accessed November 16, 2009.

Clark County. 2000. Final Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada. Department of Comprehensive Planning. Las Vega, Nevada.

Clark County. 2008. Clark County Code. South County Land Use Plan. Adopted August 20, 2008.

Clark County Department of Aviation (CCDOA). 2006. Project Description and Justification: Proposal to Construct and Operate a New Supplemental Commercial Service Airport in the Ivanpah Valley. August 2006.

_____. 2009. Southern Nevada Supplemental Airport: Airport Layout Plan. December 30, 2009.

_____. 2010. Letter from Teresa Motley, CCDOA, to Maria Engel, Vanasse Hangen Brustlin. June 29, 2010.

Federal Aviation Administration (FAA). 1993. Federal Aviation Regulations Part 77: Objections Affecting Navigable Airspace. (This edition replaces the existing loose-leaf Part 77 and its changes. This FAA publication of the basic Part 77, effective May 1, 1965, incorporates Amendments 77-1 through 77-11 with preambles.) March 1993.

Johnson, Krystal. 2009. Wild Horse and Burro Specialist, Bureau of Land Management, Las Vegas, NV. Phone conversation with Conor Doyle, Ecology and Environment, San Francisco, CA, regarding the status of the grazing allotments on December 14.

National Parks Service (NPS). 2000. Designation of National Park System Units. Last revised March 28, 2009. http://www.nps.gov/legacy/nomenclature.html. Accessed November 16, 2009.

_____. 2009. Desert Solitude in Southern California. Last revised October 10, 2009. http://www.nps.gov/moja/index.htm. Accessed November 16, 2009.

United States Fish and Wildlife Service (USFWS).1994. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. p. F16-F18.

Wainscott, Sue. 2010. Senior Management Analyst, Clark County Desert Conservation Program, Clark County, NV. Phone call with Erica Brown, Ecology and Environment, San Francisco, CA regarding the Boulder City Conservation Easement. March 26.

3.10 Noise

Clark County. 2008. Clark County Code. South County Land Use Plan. Adopted August 20.

Federal Energy Regulatory Commission (FERC). 2002. Guidance Manual for Environmental Report Preparation. August.

Federal Highway Administration (FHWA). 2006. FHWA Highway Construction Noise Handbook. U.S. Department of Transportation. August.

Federal Railroad Administration (FRA), U.S. Department of Transportation. 2005. High-Speed Ground Transportation Noise and Vibration Impact Assessment. October.

Federal Transit Administration (FTA), U.S. Department of Transportation. 2006. Transit Noise and Vibration Impact Assessment. May.

New York State Department of Environmental Conservation (NYSDEC). 2003. Program Policy DEP-00-1. June 3. Table E: Assessing and Mitigating Noise Impacts.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

U.S. Department of Housing and Urban Development. 1991. The Noise Guidebook (HUD-953-CPD). September.

U.S. Environmental Protection Agency (U.S. EPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.

3.11 Public Services and Utilities

Baker Valley Unified School District (BVUSD). 2009. Baker Valley Unified School District. http://baker.k12.ca.us. Accessed November 20, 2009.

Boulder City. 2009. Personal Communication. Thomas W. Finn, Chief of Police, Boulder City Police Department, Boulder City, NV. Email exchange with Rob Peterson, Ecology and Environment, Inc. San Francisco, CA. November 19.

Bright Source Energy Partners. 2007. Application for Certification for the Ivanpah Solar Electric Generating System (ES062007009SAC/357891/072400001). October.

Bureau of Land Management (BLM). 2009. Personal Communication. Sarah Peterson, Hydrologist, Las Vegas Field Office, Las Vegas, NV. Telephone conversation with Rob Peterson, Ecology and Environment, Inc. San Francisco, CA. October 30.

California Energy Commission (CEC) and BLM. 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

California Environmental Protection Agency. 2009. State and Regional Water Boards. http://www.waterboards.ca.gov/waterboards_map.shtml. Accessed November 20, 2009.

California Highway Patrol. 2009. California Highway Patrol. http://www.chp.ca.gov/depts_divs_offs/801.html. Accessed November 19, 2009.

California Integrated Waste Management Board (CIWMB). 2009a. Active Landfills Profile for Barstow Sanitary Landfill (36-AA-0046). http://www.ciwmb.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=36&FACID=36-AA-0046. Accessed November 20, 2009.

_____. 2009b. Active Landfills Profile for Victorville Sanitary Landfill (36-AA-0045). http://www.ciwmb.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=36&FACID=36-AA-0045. Accessed December 4, 2009.

Clark County. 2006. Comprehensive Plan: Conservation Element (website-only access). http://www.accessclarkcounty.com/depts/comprehensive_planning/compplanelements/Pages/conservation_element_ch1_solidwaste.aspx. Accessed November 19, 2009.

Clark County. 2009a. Clark County Area-Wide Water Quality. Clark County Department of Air Quality and Environmental Management. March, Final.

Clark County. 2009b. Complete List of Fire Stations. http://fire.co.clark.nv.us/(S(wcc5du55vyla0iy51fyqnc45))/List.aspx. Accessed November 19, 2009.

Clark County School District (CCSD). 2009. Clark County School District. http://www.ccsd.net. Accessed November 19, 2009.

Nevada Division of Environmental Protection (NDEP). 2008. Fact Sheet (Pursuant to NAC 445A.236). Primm Wastewater Treatment Plant (Permit No. NEV90001). The Primadonna Company, LLC. Primm, NV. February.

Nevada Highway Patrol. 2009. Southern Command Substations. http://nhp.nv.gov/south/SC_Substations.shtml. Accessed November 19, 2009.

_____. 2009a. CEQA Findings: Findings Related to the Barstow Sanitary Landfill Expansion Project Final Impact Report (State Clearinghouse No. 2005071084). September 17.

_____. 2009b. San Bernardino County Fire Department. http://www.sbcfire.org/phone_directory.asp. Accessed November 19, 2009.

_____. 2009c. Personal Communication. Peter Wulfman, Division Manager, San Bernardino County Solid Waste Management Division, San Bernardino, CA. Email exchange with Rob Peterson, Ecology and Environment, Inc. San Francisco, CA. December 2.

_____. 2009d. Personal Communication. Receptionist. San Bernardino County Sheriff's Department. Baker Substation, Baker, CA. Telephone conversation with Rob Peterson, Ecology and Environment, Inc. San Francisco, CA. November 19.

_____. 2009e. San Bernardino County Sheriff-Coroner Office. http://www.co.san-bernardino.ca.us/sheriff/patrol/Barstow.asp. Accessed November 19, 2009.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220-kV Transmission Project. Volume 1. May 28.

3.12 Recreation

Best in the Desert. 2010. Best in the Desert Racing Association. http://www.bitd.com. Access April 15, 2010.

Bureau of Land Management (BLM). 1980. California Desert Conservation Area Plan.

_____. 1998. Las Vegas Resource Management Plan.

_____. 2002. CDD 3.0 Northern and Eastern Mojave Coordinated Management Plan/Final Environmental Impact Statement: Recreation Resources and Activities.

_____. 2002a. Northern and Eastern Mojave Management Plan.

_____. 2005. Land Use Planning Handbook (H-1601-1, Release 1, 1693). March 11. Washington D.C.

_____. 2007. Las Vegas Field Office Environmental Assessment (Nv-053-2006-472). Mineral Material Sale N-82282, N-83570, N-83573, N-83574. June.

_____. 2009. Ivanpah Dry Lake. http://www.blm.gov/ca/st/en/fo/needles/ivanpah.html. Accessed November 6, 2009.

City of Boulder City. 1994. Interlocal Agreement for Sale and Grant of a Conservation Easement. Approved by City Council Resolution No. 2457 on September 27. Boulder City, CA.

Dieli, Robert. 2010. Outdoor Recreation Planner. Bureau of Land Management Las Vegas Field Office, Las Vegas, NV. Phone call with Rachel Wilkinson, Ecology and Environment, on October 25.

San Bernardino County. 2007. San Bernardino County General Plan. Prepared by URS Corporation. Santa Ana, CA.

Nevada Division of State Parks. 2003. Statewide Comprehensive Outdoor Recreation Plan. Page updated June 11, 2004. http://www.parks.nv.gov/scorp.htm. Accessed April 15, 2010.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

3.13 Socioeconomics, Population and Housing, and Environmental Justice

Boulder City. 2003. Master Plan. Boulder City, NV.

Bureau of Labor Statistics. 2010. Quarterly Census of Employment and Wages. http://www.bls.gov/cew. Accessed April 16, 2010.

Clark County. 2006a. Clark County Comprehensive Plan. Clark County, NV.

Clark County. 2006b. Clark County Resident Population Forecast. http://www.accessclarkcounty.com/depts/comprehensive_planning/demographics/Documents/FinalPopforecast.pdf. Accessed September 9, 2009.

Clark County. 2006c. Clark County Housing Unit Counts. http://www.accessclarkcounty.com/depts/comprehensive_planning/demographics/Pages/demographics.aspx. Accessed November 2, 2009.

California Department of Finance (CDF). 2007. Population Projections for California and its Counties 2000–2050. San Bernardino, CA. July. http://www.dof.ca.gov/research/demographic/reports/projections/p-1. Accessed September 9, 2009.

_____. 2009. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark. San Bernardino, CA. May. http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009. Accessed September 9, 2009.

Center for Business and Economic Research at the University of Nevada, Las Vegas. 2010. http://cber.unlv.edu/. Accessed April 16, 2010.

Council on Environmental Quality (CEQ). 1997. Environmental Justice: Guidance under the National Environmental Policy Act. http://www.ceq.hss.doe.gov/nepa/regs/ej/justice.pdf. Accessed October 29, 2009.

Las Vegas Convention and Visitors Authority (LVCVA). 2010. http://www.lvcva.com/index.jsp. Accessed April 16, 2010.

Nevada Small Business Development Center, Nevada State Demographer. 2009. Annual Population Projections for 2008 to 2020 for Nevada and Nevada's Counties. http://www.nsbdc.org/what/data_statistics/demographer/pubs. Accessed September 9, 2009.

San Bernardino Associated Governments. 2010. http://www.sanbag.ca.gov. Accessed April 16, 2010.

San Bernardino County. 2007. San Bernardino County General Plan. Prepared by URS Corporation. Santa Ana, CA.

Southern California Association of Governments (SCAG). 2008. Final 2008 Regional Comprehensive Plan. Los Angeles, CA.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. Section 4.14: Transportation and Traffic. May 28.

U.S. Census Bureau. 2009. American Fact Finder, Fact Sheet Demographic Profile Highlights. Population and other statistics for Clark County, NV and San Bernardino County, CA. http://www.factfinder.census.gov. Accessed December 10, 2009.

U.S. Environmental Protection Agency (U.S. EPA). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis. www.epa.gov/compliance/resources/.../ej_guidance_nepa_epa0498.pdf Accessed October 30, 2009.

3.14 Transportation and Traffic

AirNav. 2009. OL7 Jean Airport, Jean, Nevada, USA. http://www.airnav.com/airport/0L7. Accessed November 25, 2009.

California Department of Transportation (Caltrans). 2008. Traffic and Vehicle Data Systems Unit: 2008 All Traffic Volumes on CSHS. http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2008all.htm. Accessed November 25, 2009.

_____. 2009. About Caltrans. http://www.dot.ca.gov/hq/traffops/developserv/permits. Accessed November 25, 2009.

California Energy Commission (CEC) and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October. p. 6.10.

Clark County. 2008. Clark County Code. South County Land Use Plan. Adopted August 20, 2008.

Clark County Department of Aviation (CCDOA). 2009. Southern Nevada Supplemental Airport: Airport Layout Plan. December 30, 2009.

~~Clark County Department of Aviation (CCDOA). 2009. Southern Nevada Supplemental Airport Environmental Impact Statement. http://www.snvairporteis.com/about.asp. Accessed November 25, 2009.~~

Green, Gary. 2009. Senior Transportation Planner, Forecasting and Traffic Analysis. California Department of Transportation. San Bernardino, CA. Email communication with Luke Shillington on December 8, 2009.

Nevada Department of Transportation (NDOT). 2008. 2008 Annual Traffic Report. http://www.nevadadot.com/reports_pubs/traffic_report/2008. Accessed November 25, 2009.

_____. 2009. About the Nevada Department of Transportation. http://www.nevadadot.com/about. Accessed November 25, 2009.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. Section 4.14: Transportation and Traffic. May 28.

Transportation Research Board (TRB). 2000. Highway Capacity Manual. Washington, D.C.

Google Earth. 2009. Maps from the U.S. Department of Agriculture Farm Service Agency, Digital Globe, U.S. Geological Survey, and Europa Technologies.

5.0 Cumulative Scenario and Impacts

Acciona. 2009. Nevada Solar One. http://www.acciona-na.com/About-Us/Our-Projects/U-S-/Nevada-Solar-One.aspx. Accessed January 18, 2010.

Ann, J. 2010. Boulder City Building Department. Personal communication with Ecology and Environment, Inc., March 31.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines.

Arcadis. 2009. Third Quarter 2009 Groundwater Monitoring Report New Ivanpah Evaporation Pond San Bernardino County, California Monitoring and Reporting Program No. 90-41 WDID No. 6B369003001 October 2009. http://geotracker.swrcb.ca.gov/profile_report.asp?global_id=L10007591063. Accessed March 31, 2010.

Bennecke, Jason. 2010. Telephone conversation between Jason Bennecke, Project Manager for the Joint Port Of Entry project, California Department of Transportation (CalTrans) and Travis Whitney, Environmental Scientist, Ecology and Environment, Inc. August 25, 2010.

Bureau of Land Management (BLM). 2002. CDD 3.0 Northern and Eastern Mojave Coordinated Management Plan/Final Environmental Impact Statement: Recreation Resources and Activities.

_____. 2007. Las Vegas Field Office Environmental Assessment (Nv-053-2006-472). Mineral Material Sale N-82282, N-83570, N-83573, N-83574. June.

_____. 2009. BLM GeoCommunicator Interactive Mapping Tool. http://www.geocommunicator.gov/GeoComm/index.shtm. Accessed April 19, 2010.

_____. 2009b. Draft Plan of Development, Amendment, Silver State Solar NVN-085077 (as amended to include NVN-085801). Prepared for the Bureau of Land Management Las Vegas Field Office. Prepared by NextLight Renewable Power, LLC. November.

_____. 2010a. California Desert Conservation Area Plan Amendment / Final Environmental Impact Statement for Ivanpah Solar Electric Generating System FEIS-10-31. July 2010.

_____. 2010. Ivanpah Dry Lake. http://www.blm.gov/ca/st/en/fo/needles/ivanpah.html. Accessed March 25, 2010.

BLM. 2010a. Final Environmental Impact Statement for the Silver State Solar Energy Project. September 2010.

BLM. 2010b. ISEGS Record of Decision. October 7, 2010.

California Energy Commission (CEC) and BLM. 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

_____. 2010a. Ivanpah Solar Electric Generating System Presiding Final CEC-800-2010-004-CMF. October 5, 2010.

_____. 2010b. Final Staff Assessment Addendum. Ivanpah Solar Electric Generating System Application For Certification (07-AFC-5) San Bernardino County CEC-700-2008-013-FSA-AD. MARCH 2010.

California Integrated Waste Management Board (CIWMB). 2009. Active Landfills Profile for Victorville Sanitary Landfill (36-AA-0045). http://www.ciwmb.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=36&FACID=36-AA-0045. Accessed December 4, 2009.

Caltrans. 2010. Personal Communication with Darin Cooke, Public Information Officer, Caltrans District 8, (909) 383-4631, contact made on 3/31/10.

Caltrans 2010a. Projects: San Bernardino County – I-15 Mountain Pass Truck Lane: Northbound Rock Blasting Completed – Freeway open. http://www.dot.ca.gov/dist8/projects/san_bernardino/i15mountainpass/ on August 26, 2010.

Carpenter, D.E., M.G. Barbour, and C.J. Bahre. 1986. Old field succession in Mojave Desert scrub. *Madroño* 33: 111-122

Cass, J. 2010. Lahontan Regional Water Quality Control Board. Telephone conversation with Louise Flynn, Ecology and Environment, Inc., regarding the Former Biogen Facility and Molycorp Mine. April 1.

Chandler, Mark. 2010. Telephone conversation between Mark Chander, Project Manager and Visual Resources Management Specialist, BLM Las Vegas Field Office, and Christine McCollum, Ecology and Environment, Inc. July 2010.

Department of Toxic Substances Control (DSTC), California. 2009. EnviroStor database query. http://www.envirostor.dtsc.ca.gov/public. Accessed November 14, 2009.

_____. 2010. Chevron Mining, Inc., Molycorp (80001637). EnviroStor database query. http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80001637. Accessed March 30.

Green, G. 2009. Senior Transportation Planner, Forecasting and Traffic Analysis. California Department of Transportation. San Bernardino, CA. Email communication with Luke Shillington, Ecology and Environment, Inc., December 8.

Helseth, Greg. 2010. Telephone conversation between Greg Helseth, Renewable Energy Project Manager, BLM Las Vegas Field Office, and Christine McCollum, Ecology and Environment, Inc. July 2010.

Hunter, Christy 2010. Lahontan Regional Water Quality Control Board. Telephone conversation with Louise Flynn, Ecology and Environment, Inc., regarding the Molycorp Mine wastewater pipeline and evaporation ponds. April 7.

Jessey, D. 2010. The Colosseum Mine. Accessed March 24. http://geology.csupomona.edu/drjessey/fieldtrips/mtp/coloss.htm.

Las Vegas Review Journal. 2004. Primm Casino Staff Gets New Place to Call Home. November 18. http://www.reviewjournal.com/lvrj_home/2004/Nov-18-Thu-2004/business/25269429.html. Accessed January 15, 2010.

Meckfessel, G. 2010. Planning and Environmental Coordinator, Bureau of Land Management, Needles Field Office. Personal communication with Ecology and Environment, Inc., March 31.

Murphy, R.W., K.H. Berry, T. Edwards, A.M. McLuckie. 2007. A Genetic Assessment of the Recovery Units for the Mojave Population of the Desert Tortoise, Gopherus agassizii. Chelonian Conservation and Biology 6(2). pp. 229-251.

NV Energy. 2010. Goodsprings Waste Heat Recovery Plant (Under Construction). May 2010.

PrimmNevada.net. 2010. Primm, Nevada Gateway to Southern Nevada. http://www.primmnevada.net/index.html. Accessed on March 26.

Ricondo and Associates. 2008. Conceptual Plan Report for the Southern Nevada Supplemental Airport.

Robison, Jennifer. 2010. NV Energy plant repurposes heat from natural-gas compression to yield energy: Power from the waste up.Las Vegas Review-Journal. Jul. 10, 2010

Rundel, P.W. and A.C. Gibson. 1996. *Ecological Communities and Processes in a Mojave Desert Ecosystem: Rock Valley, Nevada*. Cambridge Press.

Sempra Generation. n.d. Power Plants in Operation. El Dorado Combined Cycle Power Plant. http://www.semprageneration.com/eds.htm. Accessed April 15, 2010.

Southern California Edison (SCE). 2009. Proponent's Environmental Assessment: Eldorado–Ivanpah 220 kV Transmission Project. May 28.

Southern California Edison (SCE). 2010. Eldorado to Ivanpah Transmission Project, Biological Assessment. Prepared for the USFWS, Bureau of Land Management, Las Vegas Field Office. August 7, 2010.

Stutz, Howard. 2008. *Gaming News*. "MGM Mirage Selling Two Laughlin Casinos." October 17, 2006.

Table Mountain Wind Company, LLC. 2002. Final Environmental Impact Statement: Table Mountain Wind Generating Facility. Prepared for the BLM Las Vegas Field Office by PBS&J. July.

URS Corporation. 2007. Application for Transportation and Utility Systems and Facilities on Federal Lands for the Cal Nev Pipeline Expansion (SF-299).

U.S. Department of the Interior (DOI) 2010. Bureau of Land Management Case Recordation (MASS) Serial Register Pages for NVN 083083 and 083129.

U.S. Department of Transportation (USDOT) Federal Railroad Administration (FRA). 2009. Draft Environmental Impact Statement and 4(f). Evaluation for the Proposed DesertXpress High-Speed Passenger Train Victorville, California to Las Vegas, Nevada. March.

U.S. Environmental Protection Agency. 2010. Toxics Release Inventory. Envirofact Report: Molycorp Minerals LLC Mountain Pass Mine. http://iaspub.epa.gov/enviro/tris_control.tris_print?tris_id=92366MLYCRI15AN. Access March 25.

United Stated Fish and Wildlife Service (USFWS). 2008a. Draft revised recovery plan for the Mojave population of the desert tortoise (Gopherus agassizii). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California. p. 209.

_____. 2008b. Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise. U.S. Department of the Interior Fish and Wildlife Service, Ventura, California. March.

Transwest LLC. 2010. Delivering Wyoming Wind Energy to the West. http://www.transwestexpress.net/ Accessed August 23, 2010.

Watkins, Tim. 2010. Telephone conversation between Tim Watkins, Construction Liaison, California Department of Transportation (CaltTrans) and Travis Whitney, Environmental Scientist, Ecology and Environment, Inc. August 25, 2010.

Wilheight, Brenda. 2010. Telephone conversation between Brenda Wilheit, Land and Realty, BLM Las Vegas Field Office, and Christine McCollum, Ecology and Environment, Inc. July 2010.

Williams, Teresa. 2010. Land Use Technician, County of San Bernardino, Land Use Services Planning Division. Phone call with Ecology and Environment, Inc., April 2.

6.0 Other Considerations

California Public Utilities Commission (CPUC), California Energy Commission (CEC), and California Power Authority (CPA). 2008. Energy Action Plan. February.

CEC and Bureau of Land Management (BLM). 2009. Final Staff Assessment / Draft Environmental Impact Statement of the Ivanpah Solar Electric Generating System Project (CEC-700-2008-013-FSA). October.

CEC. 2010. Final Staff Assessment Addendum: Ivanpah Solar Electric Generating System (CEC-700-2008-013-FSA-AD). San Bernardino County. March.

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9. Mitigation Monitoring Plan

The purpose of this Mitigation Monitoring Plan (MMP) is to ensure effective implementation of the applicant proposed measures (APMs) and mitigation measures required by the California Public Utilities Commission (CPUC) and the Bureau of Land Management (BLM) and that Southern California Edison (SCE or the applicant) has agreed to implement as part of the Eldorado–Ivanpah Transmission Project (EITP or the project). The MMP, which is outlined in Table 9-2, includes:

- Each impact evaluated in the EIR/EIS;
- APMs and mitigation measures that the applicant is required to implement as part of the project;
- Monitoring requirements;
- The timing for implementation of the APMs and mitigation measures; and
- Indicators for determining the effectiveness of mitigation measure implementation.

9.1 Environmental Monitoring

The responsibility to comply with the terms and conditions of the BLM Right-of-Way (ROW) Grant and CPUC Certificate of Public Convenience and Necessity lies with SCE. They will have inspectors present during all phases of construction to ensure they are following all APMs and mitigation measures. Additionally, an environmental monitor designated by the CPUC or BLM will monitor construction of the project to ensure full implementation of each APM and mitigation measure. In all instances where non-compliance occurs, the environmental monitor will issue a warning to the construction foreman and the applicant's project manager. Continued non-compliance will be reported to the project managers designated by the CPUC and BLM. Any decisions to halt work due to non-compliance will be made by the CPUC or BLM. The designated environmental monitor will:

- Prior to the start of construction in a given area, review applicable preconstruction surveys and verify that appropriate flagging is in place to denote sensitive resources and construction workspace boundaries, including access roads and equipment/material staging areas.
- During construction, conduct compliance monitoring, including periodic unscheduled inspections at construction areas for *active-site mitigation measures*—measures that require action during construction of the project. Examples of active-site measures include MM AIR-1, Low-Emission Construction Equipment, and MM AIR-2, Enhanced Dust Control Measures, and all other APMs, mitigation measures, and permit conditions that note monitoring of compliance at project sites.
- Monitor and evaluate the results of ongoing survey requirements completed by the applicants monitors, e.g., for nesting birds, and confirm that newly discovered resources are flagged in the field and added to applicable resource maps used by field personnel.
- Keep a record of any incidents of non-compliance with APMs, mitigation measures, or other conditions of project approval. Copies of these documents will be provided to the applicant, CPUC, BLM, and applicable resource agencies.
- Prepare daily logs of activities and compile them into a weekly report that summarize APM and mitigation measure implementation and construction activities. The weekly reports will be provided to the applicant, CPUC, BLM, and applicable resource agencies and posted to the EITP website.

9.2 Post Approval Variance Process

The CPUC and BLM along with their designated environmental monitor(s) will ensure that any project variance—change to the project that deviates from how it was described in the EIR/EIS—or deviation from the procedures identified under the MMP is consistent with CEQA and NEPA requirements. No project variance will be approved by the CPUC or BLM if it creates new significant impacts. Variances will be strictly limited to minor project changes that do not trigger additional permit requirements; do not increase the severity of an impact or create a new impact; and that clearly and strictly comply with the intent of the mitigation measures listed in Table 9-2.

Any variance from the approved project, adopted mitigation measures, APMs, and correction of such deviation, will be reported immediately to the CPUC- or BLM-designated environmental monitor(s) for review and approval as described below.

Surface disturbance locations and acreages identified in the EIR/EIS are anticipated to be sufficient for the construction and operation (including maintenance) of the project and all ancillary facilities. However, specific linear route alignment shifts and other project engineering refinements often continue past the project approval phase and into the construction and operation phases. As a result, facility locations, work area locations, and disturbed acreages locations documented in the EIR/EIS often have minor locational shifts after project approval. The project applicant has conducted resource surveys beyond the extend of the facility descriptions identified in the document in anticipation of the need to make such adjustments in the construction and operation phase to minimize impacts to resources and facilitate minor changes in facility design.

The following describes the procedures to be used for addressing minor modifications to facility alignment and location. The procedures will be identified as a term and condition of the BLM ROW Grant.

Subsequent to issuance of a ROW Grant, when additional work areas outside those evaluated in this EIR/EIS and identified in the ROW are found to be needed (whether on federal or non-federal lands), additional inventory and evaluation would be performed, if necessary, to ensure that impacts on biological, cultural, and other resources would be avoided or minimized to the maximum extent practicable. Revised facility locations and survey results would be documented and forwarded to the BLM and CPUC in the form of a "variance request." BLM and CPUC consultations and/or approval would be obtained prior to approval of the variance request.

At the conclusion of the project or as project phases are completed, as-built drawings will be provided to the BLM for the purpose of conforming the ROW Grant to the as-built locations. All modification requests will be documented and tracked to ensure the acreages of disturbance affected by post authorization conformance changes remain within the limits of impacts analyzed in the EIR/EIS and approved in the Record of Decision (ROD) and ROW.

9.3 Dispute Resolution

The following procedure will be observed by the CPUC for dispute resolution:

- **Step 1**. Disputes and complaints (including those of the public) should be directed first to the CPUC - designated project manager for resolution. The project manager will attempt to resolve the dispute.
- **Step 2**. Should this informal process fail, the CPUC -designated project manager may initiate enforcement or compliance action to address deviations from the project or adopted MMP.
- **Step 3**. If a dispute or complaint regarding the implementation or evaluation of the MMP cannot be resolved informally or through enforcement or compliance action by the CPUC, any affected participant in the dispute or complaint may file a written "notice of dispute" with the CPUC-designated Executive Director. This notice should be filed in order to resolve the dispute in a timely manner, with copies concurrently served on other

affected participants. Within 10 days or receipt, the Executive Director or designee(s) shall meet or confer with the filer and other affected participants for the purpose of resolving the dispute. The Executive Director shall issue an Executive Resolution describing his/her decision, and serve it on the filer and other affected participants.

- **Step 4**. If one or more of the affected parties is not satisfied with the actions or decisions made following completion of the preceding steps, such party(ies) may appeal it to the CPUC via a procedure to be specified by the agencies.

Note: Parties may also seek review by the CPUC through existing procedures specified in the *CPUC Rules of Practice and Procedure* for formal and expedited dispute resolution, although a good faith effort should first be made to use the foregoing procedure.

Disputes and complaints (including those of the public) regarding a BLM ROW Grant are appealed to the Interior Board of Land Appeals. The Interior Board of Land Appeals is an appellate review body that exercises the delegated authority of the Secretary of the Interior to issue final decisions for the Department of the Interior. It is located within the Department of the Interior's Office of Hearings and Appeals but is separate and independent from the Bureaus and Offices whose decisions it reviews.

9.2 Review of Plans, Permits, and Other Documentation

The measures listed in Table 9-2 require the applicant to prepare a number of plans, programs, studies, surveys, reports, records, and other documentation and submit them to the CPUC, the BLM, or other agencies. Some measures require that plans or other documentation are prepared in consultation with one or more agencies. Table 9-1 lists the required plans, surveys, and other documentation and indicates which ones are needed prior to start of construction. In addition, the applicant must acquire a number of permits (Table 1-2).

The CPUC and BLM monitoring team, including the CPUC and BLM project managers, environmental monitors, and technical experts, will review all plans and other documentation as required in the measures listed in Table 9-2. Deliverables sent to the applicant will include a report on each plan, permit, or other document reviewed in addition. Each plan will be approved once it is determined that it complies with the APM or mitigation measure and that changes (if required) have been made.

Table 9-1 Required Plans, Programs, Studies, Surveys, Reports, and Records

Plan, Study, or Survey	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Required to Initiate Construction [1]
Worker Environmental Awareness Program (WEAP)	APM BIO-6, APM BIO-11, APM BIO-14, APM CR-5, and APM PALEO-3	Yes
Record of Trained Personnel	APM BIO-6	Yes
Preconstruction Biological Clearance Surveys for Special-Status Plants, Noxious Weeds, and General and Special-Status Wildlife	MM BIO-1 and APM BIO-1	Yes
Reclamation, Restoration, and Revegetation Plan	MM BIO-2 and MM BIO-3	Yes [2]
Invasive Plant Management Plan	MM BIO-4 and APM BIO-10	Yes
Jurisdictional Delineation and Associated Permits	MM BIO-5	Yes
Drainage Crossings Design Plans	MM BIO-6	Yes
Mitigation Monitoring Plan for Affected Jurisdictional Areas	MM BIO-7	Yes
Night Lighting Reduction Measures	MM BIO-8	Yes
Record of Acceptance of USFWS Biological Opinion, CDFG 2081 Permit, and NDOW Authorization	MM BIO-12	Yes

Table 9-1 Required Plans, Programs, Studies, Surveys, Reports, and Records

Plan, Study, or Survey	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Required to Initiate Construction [1]
Preconstruction Survey for Desert Tortoise	MM BIO-12 and APM BIO-11	Yes
Desert Tortoise Reports to the USFWS, NDOW, CDFG, and CPUC	MM BIO-12 and APM BIO-11	No
Raven Management Program	APM BIO-11	No
Preconstruction Survey for Desert Bighorn Sheep	MM BIO-13 and APM BIO-12	Yes
Desert Bighorn Sheep Occurrence Report to NDOW	MM BIO-13	No
Preconstruction Survey for American Badger	MM BIO-14	Yes
Migratory Bird and Raptor Active-Nest Report to USFWS, BLM, NDOW, and CDFG	MM BIO-15	No
Raptor and Nesting Bird Surveys	APM BIO-7	Yes
Preconstruction Survey for Burrowing Owl	MM BIO-16	Yes
Burrowing Owl Mitigation and Monitoring Plan	MM BIO-16 [3]	Yes
Burrowing Owl Occurrence Report to USFWS, BLM, NDOW, and CDFG	MM BIO-16	No
Avian Protection Plan	MM BIO-18 and APM BIO-8	Yes
Construction Monitoring and Unanticipated Cultural Resources Discovery Plan	MM CR-1 and APM CR-5	Yes
Intensive Archaeological Inventory	APM CR-1	Yes
Reports on the Historical Significance of Buildings and Structures and Impacts	APM CR-3b and APM CR-4b	Yes
Report of Findings After Cultural Resources Monitoring	MM CR-1	No
Plan to Mitigate Damage to Tower Structures Due to Subsidence	MM GEO-1 [4]	No
Geotechnical Engineering Study	MM GEO-2, MM GEO-4, and APM GEO-1	Yes
Stormwater Pollution Prevention Plan (SWPPP)	MM GEO-3, APM GEO-3, and APM W-9	Yes
Paleontological Resource Management Plan	APM PALEO-1	Yes
Preconstruction Paleontological Field Survey	APM PALEO-2	Yes
Monthly Progress Reports	APM PALEO-6	No
Final Paleontological Resource Recovery Report	APM PALEO-7	No
Curation Agreement	APM PALEO-8	Yes
Phase I Environmental Site Assessment (ESA)	APM HAZ-1	Yes
Hazardous Materials and Waste Handling Management Plan	APM HAZ-2 and APM W-2	Yes
Soil Management Plan	APM HAZ-3	Yes
Fire Management Plan	APM HAZ-4	Yes
Hazardous Materials Business Plan	APM HAZ-5	Yes
Spill Prevention, Countermeasure, and Control Plan	APM HAZ-5	Yes
Health and Safety Plan and Emergency Release Response Procedures	MM HAZ-1, APM W-10, and APM NOI-6	Yes
Worker Health and Safety and Environmental Training and Monitoring Program	MM HAZ-1	Yes
Erosion Control Plan	MM W-1 and APM W-2	Yes
Water Use Plan	MM W-2	Yes
Onsite Flow Model	MM W-3	Yes
Dry Lake Restoration Plan	MM W-4	Yes
Historical Hydrological Model of Alluvial Fan	MM W-5	Yes
Record of Approval from Clark County and the City of Boulder City for Activities Outside of BLM-Designated Utility Corridors	MM LU-1	Yes

Table 9-1 Required Plans, Programs, Studies, Surveys, Reports, and Records

Plan, Study, or Survey	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Required to Initiate Construction [1]
Construction Waste Disposal Plan	MM PUSVC-1	Yes
Record of Encroachment Permits for Work Within Roadway and Railroad Rights-of-Way	APM TRA-1	Yes
Traffic Management and Control Plans	APM TRA-2	Yes
Helicopter Flight Plan and Safety Plan	MM TRANS-2	Yes

Note:

[1] This table includes some documents that are not required prior to construction. These documents will be reviewed within 30 days of receipt of the completed submittal.

[2] MM BIO-2 requires that the Reclamation, Restoration, and Revegetation Plan be developed prior to adoption of the Final EIR/EIS.

[3] The plan is only required if burrowing owls are found on site in the California portion of the project.

[4] The plan is only required if physical evidence proves groundwater withdrawals are threatening tower locations.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
3.2 Visual Resources				
IMPACT AES-1: Adverse Impact to a Scenic Vista	**APM AES-1: Road Cut Rock Staining.** Where new roads are required in the South McCullough Mountains to access new or existing transmission and subtransmission towers, the applicant would consult with the BLM regarding feasible methods to treat the exposed rock to match the overall color of the adjacent weathered rock.	Ensure that the applicant consulted with the BLM as required in APM AES-1. See additional requirements in APM AES-1.	After construction	APM implemented.
IMPACT AES-1: Adverse Impact to a Scenic Vista	**APM AES-2: Seeding and Inter-Planting.** Where new roads are required in the South McCullough Mountains to access new or existing transmission and subtransmission towers, road cuts would be treated by seeding and/or inter-planting into the disturbed areas to restore the area to an appearance that would blend back into the overall landscape context.	See requirements in APM AES-2.	After construction	Areas disturbed by EITP road construction activities restored to an appearance that blends into the surrounding landscape.
IMPACT AES-1: Adverse Impact to a Scenic Vista	**APM AES-3: Non-Reflective Finish.** LSTs and TSPs would be constructed of steel that was galvanized and treated at the factory to create a dulled finish that would reduce reflection of light off of the tower members. As appropriate to the environment, the galvanized coating would also be treated to allow the towers to blend into the backdrops. Non-specular transmission cable would be installed for the new transmission line to minimize conductor reflectivity.	See requirements in APM AES-3.	During construction	APM fully implemented as specified.
IMPACT AES-2: Degrade Existing Visual Character or Quality	**APM AES-4: Regrade / Revegetate Construction Sites.** Areas around new or rebuilt transmission and subtransmission structures that must be cleared during the construction process would be regraded and revegetated to restore them to an appearance that would blend back into the overall landscape context.	See requirements in APM AES-4.	After construction	APM fully implemented as specified.
IMPACT AES-2: Degrade Existing Visual Character or Quality	**APM AES-5: Use Existing Access Roads.** To the extent feasible, existing access roads would be used.	See requirements in APM AES-5.	During construction	APM implemented.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT AES-2: Degrade Existing Visual Character or Quality	**APM AES-6: Minimize Road Modifications.** Widening and grading of roads would be kept to the minimum required for access by proposed project construction equipment.	See requirements in APM AES-6.	During construction	APM implemented.
IMPACT AES-2: Degrade Existing Visual Character or Quality	**APM AES-7: Dust Suppression.** During the construction period, dust suppression measures would be used to minimize the creation of dust clouds potentially associated with the use of the access roads.	See requirements in APM AES-7.	During construction	APM fully implemented as specified.
IMPACT AES-2: Degrade Existing Visual Character or Quality	**MM AES-1: Painting the Ivanpah Substation.** Prior to construction, the applicant will consult with the BLM to select an appropriate color from the BLM approved palette to paint any enclosed structures that would be constructed for the Ivanpah Substation. The applicant will submit photographs following substation construction to the BLM and the CPUC to document compliance with this measure.	Ensure that BLM-approved colors were used to paint enclosed Ivanpah Substation structures and photographs of the completed structures were submitted to the BLM and CPUC.	Prior to, during, and after construction	Enclosed structures for the Ivanpah Substation are painted with colors from the BLM approved palette.
IMPACT AES-2: Degrade Existing Visual Character or Quality	**MM AES-2: Rock Staining near the Ivanpah Substation.** For areas that are cleared and/or graded to construct the Ivanpah Substation, the applicant would consult with the BLM regarding feasible methods to treat the exposed rock to match the overall color of the adjacent weathered rock.	Ensure that BLM was consulted as required in MM AES-2. See additional requirements in MM AES-2.	After construction	Rock exposed by grading for Ivanpah Substation is treated to match the overall color of adjacent weathered rock.
IMPACT AES-3: Create a New Source of Light or Glare	**APM AES-8: Substation Lighting Control.** The substation lighting would be designed to be manually operated only when required for non-routine nighttime work. The lighting would be directed downward and shielded to eliminate offsite light spill at times when the lighting might be in use.	See requirements in APM AES-8.	During and after construction	Ivanpah Substation lighting is off unless manually turned on. Lighting is directed downward and shielded.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
3.3 Air Quality and Greenhouse Gases				
IMPACT AIR-2: Temporary Ambient Air Quality Impacts Caused by Construction Activities Would Violate or Contribute Substantially to an Air Quality Violation	**MM AIR-1: Low-emission Construction Equipment.** All construction equipment with a rating between 100 and 750 horsepower (hp) will be required to use engines compliant with U.S. EPA Tier 2 non-road engine standards. In addition, all off-road and portable construction diesel engines not registered under the CARB Statewide Portable Equipment Registration Program that have a rating of 50 hp or more will meet, at a minimum, the Tier 2 California non-road engine standards unless that engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 100 hp, that engine will be equipped with a Tier 1 engine. The applicant will substitute small electric-powered equipment for diesel- and gasoline-powered construction equipment where feasible. The applicant will maintain construction equipment according to manufacturing specifications and use low-emission equipment.	Ensure that applicable equipment meets U.S. EPA standards and is registered under CARB's program as specified in MM AIR-1. See additional requirements in MM AIR-1.	During construction	Each MM AIR-1 requirement is implemented.
IMPACT AIR-2: Temporary Ambient Air Quality Impacts Caused by Construction Activities Would Violate or Contribute Substantially to an Air Quality Violation	**MM AIR-2: Enhanced Dust Control Measures.** In addition to the dust control requirements by MDAQMD and CC-DAQEM, the following measures will be implemented for mitigation: • Frequent watering or stabilization of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes persistent visible emissions of fugitive dust beyond the work area • Pre-watering of soils prior to clearing and trenching • Pre-moistening of, prior to transport, import and export dirt, sand, or loose materials • Dedication of water truck or high-capacity hose to any soil screening operations • Minimization of drop height of material through screening equipment • Reduction of the amount of disturbed area where possible • Planting of vegetative ground cover in disturbed areas after construction activities have ceased within a time period that is consistent with the Project's Reclamation Plan as described in MM	Ensure that applicable MDAQMD and CC-DAQEM requirements and the additional requirements specified in MM AIR-2 are followed.	During construction	Each MM AIR-2 requirement is fully implemented.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	BIO-2.			
IMPACT AIR-3: Temporary Emission Increases of NO_x, VOCs, and PM_{10} during Construction would Contribute to a Cumulatively Considerable Net Increase of a Criteria Pollutant in a Non-Attainment Area	**MM AIR-1: Low-emission Construction Equipment.** See above. **MM AIR-2: Enhanced Dust Control Measures.** See above.	See above.	See above.	See above.
IMPACT AIR-6: Generate GHG Emissions That May Have a Significant Impact on the Environment	**MM AIR-3: Best Management Practices for GHG Reduction.** The applicant would be required to enforce and follow limits for idling time for commercial vehicles, including delivery and construction vehicles. The applicant would be also be required to consider the following best management practices to reduce the potential for GHG emissions: • Joining U.S. EPA's SF6 Emission Reduction Partnership for Electric Power Systems (http://www.epa.gov/highgwp/electricpower-sf6/basic.html); • Performing annual inspections and estimation of SF6 emissions using an emission inventory protocol; • For equipment that would contain SF6, purchasing only new equipment that meets International Council on Large Electric Systems (CIGRE) standards for leak rates; • Implementing SF6 recovery and recycling; • Ensuring that only knowledgeable personnel handle SF6; and • Providing a vanpool for construction workers.	Idling time limits for commercial vehicles implemented along with best management practices for limited GHG emissions.	During construction	MM AIR-3 requirements fully implemented.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
3.4 Biological Resources				
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**APM BIO-1: Preconstruction Surveys.** Preconstruction biological clearance surveys would be conducted by qualified biologists to identify special-status plants and wildlife.	Ensure that preconstruction biological surveys were conducted as specified in APM BIO-1.	Prior to construction	APM fully implemented as specified.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**APM BIO-2: Minimize Vegetation Impacts.** Every effort would be made to minimize vegetation removal and permanent loss at construction sites. If necessary, native vegetation would be flagged for avoidance.	See requirements in APM BIO-2.	Prior to and during construction	APM implemented.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**APM BIO-4: Best Management Practices.** Crews would be directed to use Best Management Practices (BMPs) where applicable. These measures would be identified prior to construction and incorporated into the construction operations.	See requirements in APM BIO-4.	Prior to and during construction	APM implemented.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**APM BIO-5: Biological Monitors.** Biological monitors would be assigned to the project in areas of sensitive biological resources. The monitors would be responsible for ensuring that impacts on special-status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors would flag the boundaries of areas where activities would need to be restricted in order to protect native plants and wildlife or special-status species. Those restricted areas would be monitored to ensure their protection during construction.	Ensure that biological monitors are assigned as specified in APM BIO-5. See additional requirements in APM BIO-5.	During construction	Biological resources in restricted areas with flagged boundaries are protected.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant	**APM BIO-6: Worker Environmental Awareness Program.** A Worker Environmental Awareness Program (WEAP) would be prepared. All construction crews and contractors would be required to participate in WEAP training prior to starting work on the project. The WEAP training would include a review of the special-status species and other sensitive	Ensure that all construction crews and contractors participate in WEAP training as required in APM BIO-6, and a record of training is maintained. See	Prior to construction	All construction crews and contractors participate in WEAP training.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
species	resources that could exist in the project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel would be maintained.	additional requirements in APM BIO-6.		
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**APM BIO-9: Facility Siting.** Final tower and spur road locations would be adjusted to avoid sensitive biological resources to the greatest extent feasible.	See requirements in APM BIO-9.	During construction	APM implemented.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**APM AES-4: Regrade / Revegetate Construction Sites.** See above. **APM AES-6: Minimize Road Modifications.** See above. **APM AES-7: Dust Suppression.** See above.	See above.	See above.	See above.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**MM BIO-1: Preconstruction Surveys.** Preconstruction surveys will be conducted by USFWS-approved biologists according to the most current USFWS protocols, where available by species. These surveys will include surveying brush clearing areas and ground disturbance areas within habitat deemed suitable for sensitive species by a qualified biologist. As part of the pre-construction surveys, the composition of the vegetation community will be surveyed to establish baseline conditions prior to construction for post-construction restoration efforts. These surveys will be conducted for the presence of special-status plants, the presence of noxious weeds, and the presence of general and special-status wildlife species, to prevent direct loss of vegetation and wildlife and to prevent the spread of noxious plant species. For the noxious weeds survey, the level of effort and extent of the surveys will be outlined by the Invasive Plant Management Plan (MM BIO-4).	Ensure that preconstruction biological surveys were conducted as specified in MM BIO-1.	Prior to construction	Preconstruction surveys are completed.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**MM BIO-2: Reclamation Plan.** The applicant will develop a Reclamation, Restoration, and Revegetation Plan (RRRP) prior to adoption of the Final EIR/EIS that will guide restoration and revegetation activities for all disturbed lands associated with construction of the project and the eventual termination and decommissioning of the project. The RRRP will be part of the applicant's final Plan of Development for the project and should address all federal and private land disturbances, including areas where restoration activities have been funded by the Clark County MSHCP and initiated by resource agencies. The RRRP will be developed in consultation with appropriate agencies (BLM, CPUC, CDFG, and Clark County DCP) and be provided to these agencies for review and approval prior to preparation of the Final EIR/EIS. NDOW and the BLM Las Vegas Field Office will be consulted for restoration efforts concerning Nevada State protected cacti and yucca species, which may include preparation of a separate Cactus and Yucca Reclamation Plan. The RRRP will also provide details including but not limited to topsoil segregation and conservation, vegetation treatment and removal, salvage of succulent species, revegetation methods including seed mixes, rates and transplants, and criteria to monitor and evaluate revegetation success. Post-construction monitoring will be performed for 1 to 5 years, depending on the disturbance level and restoration level as outlined in the BLM's 2001 Restoration Plan for Energy Projects in the Las Vegas Field Office.	Ensure that RRRP was developed as specified in MM BIO-2 and MM BIO-3.	Prior to adoption of the Final EIR/EIS and after construction	RRRP becomes part of the Plan of Development for the proposed project and revegetation is successful as specified by the criteria outlined in the RRRP.
IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species	**MM BIO-3: Special-Status Plants Restoration and Compensation.** The applicant will mitigate for the loss of special-status plant species within the project area following the completion of all construction activities at a particular site and within 1 year of post-construction according to the requirements of resource agency authorizations (e.g., CDFG 2081 permit). Special-status plants will be restored by relocation of plants and/or re-seeding, replacing topsoil with existing topsoil that was removed, and re-grading to pre-existing soil contours. Measures to restore special-status plants will be implemented through the Reclamation Plan (MM BIO-2). Additionally, that plan will provide a matrix showing how the applicant will address each species considered sensitive or special-status in terms of mitigation type (e.g., seed	Ensure that mitigation for the loss of special-status plant species occurs within 1 year of construction and as specified in MM BIO-3. Ensure that documentation of consultations with agencies is provided to the CPUC.	Prior to, during, and after construction	Special-status plants are restored as specified in the RRRP or compensation is provided based on consultation with appropriate agencies.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	collection, transplanting, fencing certain population, and compensation measures). The CDFG will likely require land compensation and enhancement and endowment fees for the project in addition to restoration. If special-status plant communities cannot be restored, the applicant will provide compensation if required, in consultation with appropriate agencies (USFWS, BLM, CDFG, NDOW, and CPUC). In order to ensure enforceability, documentation of consultations with all appropriate agencies will be provided to the CPUC (the CEQA lead agency).			
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**APM BIO-1: Preconstruction Surveys.** See above. **APM BIO-4: Best Management Practices.** See above. **APM BIO-5: Biological Monitors.** See above. **APM BIO-6: Worker Environmental Awareness Program.** See above.	See above.	See above.	See above.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**APM BIO-10: Invasive Plant Management.** An invasive plant management plan would be developed to reduce the potential for spreading invasive plant species during construction activities.	Ensure that an Invasive Plant Management Plan was developed as specified in APM BIO-10.	Prior to construction	APM implemented.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**APM AES-6: Minimize Road Modifications.** See above. **APM AES-8: Substation Lighting Control.** See above. **APM NOI-4: Construction Equipment Muffled.** See below. **APM NOI-5: Construction Equipment Idling Minimized.** See below. **APM W-12: Properly Dispose of Hazardous Materials.** See below.	See above/below.	See above/below.	See above/below.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-8: Reduce Night Lighting.** Night lighting will be reduced in all natural areas to avoid unnecessary visual disturbance to wildlife. Night lighting during construction, operations, and maintenance will be reduced in natural areas using directed lighting, shielding methods, and/or reduced lumen intensity. The applicant will indicate anticipated measures to resource agencies for approval prior to construction. The approved measures will be provided to the CPUC.	Ensure that the applicant submits night lighting reduction measures to resource agencies for approval prior to construction and provides the approved measures to the CPUC. See additional requirements in MM BIO-8.	Prior to and during construction	Night lighting is reduced using directed lighting, shielding methods, reduced lumen intensity, and/or other methods.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-9: Cover Steep-walled Trenches or Excavations during Construction.** To prevent entrapment of wildlife, all steep-walled trenches, auger holes, or other excavations will be covered at the end of each day. Fencing will be maintained around the covered excavations at night. For open trenches, earthen escape ramps will be maintained at intervals of no greater than 0.25 miles. A biological monitor will inspect all trenches, auger holes, or other excavations a minimum of twice per day during non-summer months and a minimum of three times per day during the summer (hotter) months, and also immediately prior to back-filling. Any wildlife species found will be safely removed and relocated out of harm's way, using suitable tools such as a pool net when applicable. For safety reasons, biological monitors will under no circumstance enter open excavations.	Ensure that excavations are covered, earthen escape ramps are maintained for open trenches, and monitoring takes place as specified in MM BIO-9. See additional requirements in MM BIO-9.	During construction	Entrapment of wildlife is prevented.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-10: Biological Monitors.** Biological monitors will be provided throughout construction activities in all construction zones with the potential for presence of sensitive biological resources. A minimum of one monitor per crew is needed for construction crews using heavy equipment (e.g., backhoes, large trucks). One roving monitor will monitor multiple times per day in other active construction zones where heavy equipment is not in use.	Ensure a minimum of one monitor per crew for crews that use heavy equipment. See additional requirements in MM BIO-10.	During construction	Biological monitors are provided for construction activities in all construction zones.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-11: Water Usage.** Water used for fugitive dust control will not be allowed to pool on access roads or other project areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water.	See requirements in MM BIO-11.	During construction	Water used for fugitive dust control does not pool.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-12: Desert Tortoise Impacts Reduction Measures.** To reduce impacts on desert tortoise, the following will be done: • The applicant cannot begin construction until issuance and acceptance of the USFWS Biological Opinion, the CDFG 2081 permit, and NDOW authorization. A copy of the USFWS Biological Opinion and documentation of any compliance discussions with Clark County and Boulder City will be provided to the CPUC and the Clark County Desert Conservation Program.	- Ensure acceptance of biological opinion, CDFG 2081 permit, and NDOW authorization and completion of preconstruction surveys for desert tortoise. - Ensure that biological monitors clear active work sites located in desert tortoise habitat each	Prior to and during construction	Impacts on Desert Tortoise are avoided, or at minimum, active work sites are cleared of all Desert Tortoise according to the most-current

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	• Construction monitoring will employ a designated field contact representative, authorized biologist(s), and qualified biologist(s) approved by the USFWS, NDOW, and CDFG during the construction phase of the project. BLM will recommend qualified, authorized biologists to the USFWS and will approve all biological monitors. • Qualified and/or authorized biologists will monitor all construction activities year-round in desert tortoise habitat, regardless of the time of year or weather conditions, as tortoises are often active outside their "active" season. • Qualified and/or authorized biologists will conduct preconstruction surveys according to the most current USFWS protocol. • Authorized biologists will handle desert tortoises following the most current Desert Tortoise Council handling guidelines (2009 or newer). • Prior to commencing desert tortoise relocation activities, authorization will be obtained from NDOW, CDFG, and USFWS. The authorized biologist will not be required to receive approval to move individual desert tortoises during construction. • Desert tortoise relocations will only occur from an active construction zone to an area that is not under active construction by the EITP project or any other planned project. • Biological monitors will clear ahead of construction crews in desert tortoise habitat during all clearing and grading activities, or during any activity where undisturbed vegetation would be crushed. In addition, biological monitors will clear ahead of larger, non-rubber-tired equipment when that equipment is being driven on access and spur roads. • Biological monitors will clear all active work sites located in desert tortoise habitat each morning before construction begins and throughout the day if crews move from construction site to construction site. • Results of biological monitoring and status of construction will be	morning before construction. - Ensure that the results of biological monitoring and status of construction are detailed in daily reports submitted to the CDFG on a weekly basis. - Ensure that California-specific Desert Tortoise Council handling guidelines are followed for project activities in California. - See additional requirements in MM BIO-12.		applicable handling procedures.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	detailed in daily reports by biological monitors. These reports will be submitted to the authorized biologist on a daily basis and to the CFR on a weekly basis (at minimum). The authorized biologist will notify the CFR within 24 hours of any action that involves harm to a desert tortoise, or involves a blatant disregard by construction personnel for the APMs or MMs designed to minimize impacts on desert tortoise or other wildlife. The authorized biologist will submit to the USFWS, NDOW, CDFG, and CPUC a summary of all desert tortoises seen, injured, killed, excavated, and handled at the end of the project or within 2 working days of when desert tortoises are harmed. • No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95 degrees Fahrenheit (35 degrees Celsius). No desert tortoise shall be captured if the ambient air temperature is anticipated to exceed 95 degrees Fahrenheit before handling or processing can be completed. If the ambient air temperature exceeds 95 degrees Fahrenheit during handling or processing, desert tortoises shall be kept shaded in an environment which does not exceed 95 degrees Fahrenheit, and the animals shall not be released until ambient air temperature declines to below 95 degrees Fahrenheit. For relocation, captured tortoises may be held overnight and moved the following morning within these temperature constraints. • During all handling procedures, desert tortoises must be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, hyperactivity, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises must be kept shaded at all times until it is safe to release them. Ambient air temperature must be measured in the shade, protected from wind, and at a height of 2 inches above the ground surface. • If a desert tortoise voids its bladder as a result of being handled, the animal shall be rehydrated. The process of rehydrating a desert tortoise will take place at the location where the animal was			

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	captured (or to be released, for translocated tortoises), and consist of placing the desert tortoise in a tub with a clean plastic disposable liner. The amount of water that is placed in the lined tub shall not be higher than the lower jaw of the animal. Each desert tortoise shall be rehydrated for a minimum of 10 to 20 minutes. During the period when the desert tortoise is in the tub, the tub will be placed in a quiet protected area. Desert tortoises shall be soaked individually. • If a desert tortoise is injured as a result of project-related activities, it shall be immediately taken to a CDFG-approved wildlife rehabilitation or veterinary facility. The applicant shall identify the facility prior to the start of ground- or vegetation-disturbing activities. The applicant shall bear any costs associated with the care or treatment of such injured covered species. The applicant shall notify CDFG of the injury immediately unless the incident occurs outside of normal business hours. In that event CDFG shall be notified no later than noon on the next business day. Notification to CDFG shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident, and the name of the facility where the animal was taken. • The applicant will produce a Raven Management Plan that is acceptable to the BLM and the CPUC. Details in the plan will include information on procedures, frequency, and recommended season for conducting raven nest surveys, procedures and responsibilities for raven nest removal, USFWS/NDOW/CDFG authorization and/or permitting requirements for conducting raven control, and compensation measures for raven reduction programs in California and Nevada. The plan will be submitted to the BLM and the CPUC at least 60 days prior to construction for review and approval.			

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-13: Desert Bighorn Sheep Impacts Reduction Measures.** To reduce impacts on desert bighorn sheep, the following will be done: • Conduct preconstruction survey for desert bighorn sheep within suitable bighorn sheep habitat within 1 week prior to construction activities in the McCullough Range, Clark Mountain Range, and the southern portion of the Eldorado Valley between the Highland Range and the Southern McCullough Range. The occurrence and location of any desert bighorn sheep will be reported to NDOW for sightings in Nevada and reported to CDFG for sightings in California. • Conduct biological monitoring by a qualified biologist for desert bighorn sheep during duration of construction within suitable bighorn sheep habitat. The occurrence and location of any desert bighorn sheep will be reported to NDOW for sightings in Nevada and reported to CDFG for sightings in California. If bighorn are found to be within 500 feet of construction activities, construction in that area will be stopped until the sheep vacate the project area. • Avoid all construction activities (with the exception of vehicle use of access roads during emergencies) in lambing areas from January to May in the North McCullough Pass area (approximately MP 9 to MP 12) during the duration of construction and all maintenance events.	- Ensure that preconstruction surveys for desert bighorn sheep are conducted no more than 1 week prior to construction and as specified in MM BIO-13. - Ensure that all bighorn sheep occurrences are reported to NDOW and construction is stopped if a bighorn sheep is found within 500 feet of construction activities. - See additional requirements in MM BIO-13.	Prior to, during, and after construction	Construction does not take place within 500 feet of any desert bighorn sheep, and construction activities in lambing areas are avoided from January to May in the North McCullough Pass area.
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-14: American Badger Impacts Reduction Measures.** To reduce impacts to American badger, the following will be done: • Qualified biologists will be notified if badgers are observed within the project area during construction activities. Work will immediately be stopped in the area if the biologists find occupied burrows within 100 feet of construction activities during preconstruction surveys. • Qualified biologists will ensure passive relocation of the occupied burrow by installing one-way trap doors on the burrow. The burrow will be collapsed after the badger vacates. • During the spring months when young may be present in burrows, burrows must be checked for young before the installation of the	Ensure that work is stopped if occupied burrows are found within 100 feet of construction activities. See additional requirements in MM BIO-14.	Prior to and during construction	All occupied American badger burrows within 100 feet of construction activities are relocated.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	one-way trap door. If young are present during relocation efforts, all work will stop within 100 ft of the burrow until the young have left the burrows within the project area. • Work will be allowed to resume once the badger has relocated outside the 100-foot zone.			
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-15: Migratory Birds and Raptors Impacts Reduction Measures.** To reduce impacts on migratory birds and raptors, the following will be done: • Biological monitors will monitor and enforce disturbance buffers around all active bird nests (for raptors and species protected by the MBTA) found in project areas during construction. The general bird breeding season for this area is late February to early July. For raptors specifically, the applicant will use the USFWS Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (1999) to determine appropriate survey areas and disturbance buffers for active nests, except for burrowing owl nests, for which the applicant will be in compliance with the minimum distances outlined by the California Burrowing Owl Consortium Protocol. For all non-raptor bird species, biologists will survey within project areas. Because there are no standardized disturbance buffers for active non-raptor bird nests, SCE will consult with the appropriate agencies (BLM, USFWS, CDFG, and NDOW) on a case-by-case basis when active nests are found in project areas, unless directed to do otherwise by these same agencies. • Active bird nests will not be moved during breeding season, unless the project is expressly permitted to do so by the USFWS, BLM, CDFG, or NDOW depending on the location of the nest. • All active nests and disturbance or harm to active nests will be reported within 24 hours to the USFWS, BLM, CDFG, and NDOW upon detection. • The biological monitor will halt work if it is determined that active nests would be disturbed by construction activities, until further direction or approval to work is obtained from the appropriate	- Ensure that the applicant consults with NDOW prior to construction. - Ensure that work is stopped if active nests would be disturbed by construction activities. - Ensure that all active nests and disturbance or harm to active nests are reported within 24 hours to the agencies specified. - See additional requirements in MM BIO-15.	Prior to and during construction	Work is stopped if active nests would be disturbed, and active bird nests are not moved during the breeding season unless expressly permitted.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	agencies. • Seasonal work stoppages may be required by NDOW for project areas that pass the Wee Thump Joshua Tree Wilderness if construction activities occur within the breeding season. The applicant will consult with NDOW prior to construction. • As outlined by the *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006), the following avian safe practices will be employed during construction: cover phase conductors with manufactured covers, include perch discouragers on crossarms and on top of poles, exceed the minimal distance between phase conductors to prevent electrocution by perched birds and their wingspan, utilize longer horizontal insulators, suspend phase conductors on pole top and cross arms, install horizontal jumper support to increase the phase-to-ground separation, replace tension members with fiberglass or non-conducting materials, cover tension members with dielectric material, utilize fiberglass poles or switches, and install standard nest discouragers.			
IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife	**MM BIO-16: Burrowing Owl Impacts Reduction Measures.** To reduce impacts on burrowing owl, the following will be done: • A qualified biologist will conduct preconstruction surveys within 30 days prior to construction for burrowing owl within suitable habitat prior to breeding season (February 1 through August 31). All areas within 50 m (approximately 150 feet) of the project area will be surveyed. • If an active nest is identified, there will be no construction activities within 50 m (approximately 150 feet) of the nest location to prevent disturbance until the chicks have fledged, as determined by a qualified biologist. • The occurrence and location of any burrowing owl will be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. The authorized biologist will report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS, BLM,	- Ensure that preconstruction surveys for burrowing owl are conducted within 30 days of construction and as specified in MM BIO-16. - Ensure that construction activities do not occur within 150 feet of active nests. - Ensure that all burrowing owl occurrences are reported on a daily basis to the USFWS, BLM, NDOW, and CDFG. - Ensure that a Burrowing Owl Mitigation and Monitoring Plan is submitted to CDFG if owls are found on site in the	30 days prior to construction, during, and after construction	No construction activities occur within 150 feet of active nests, and for burrowing owls found on site in California, compensation is provided and the additional measures listed in MM BIO-16 are fully implemented.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	NDOW, CDFG). If burrowing owls are found on site in the California portion of the project, the following additional measures will be included: 1) As compensation for the direct loss of burrowing owl nesting and foraging habitat, the project proponent shall mitigate by acquiring and permanently protecting known burrowing owl nesting and foraging habitat at the following ratio: (a) Replacement of occupied habitat with suitable habitat at 1.5 x 6.5 acres per pair or single bird; (b) Replacement of occupied habitat with habitat contiguous with occupied habitat at 2 x 6.5 acres per pair or single bird; and/or (c) Replacement of occupied habitat with suitable unoccupied habitat at 3 x 6.5 acres per pair or single bird. 2) A Burrowing Owl Mitigation and Monitoring Plan shall be submitted to CDFG for review and approval prior to relocation of owls. The Burrowing Owl Mitigation and Monitoring Plan shall describe proposed relocation and monitoring plans. The plan shall include the number and location of occupied burrow sites and details on adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available nearby for relocation, details regarding the creation of artificial burrows (numbers, location, and type of burrows) shall also be included in the plan. The plan shall also describe proposed off site areas to preserve to compensate for impacts to burrowing owls/occupied burrows at the project site as required under Condition 1. A copy of the approved plan will be provided to the CPUC.	California portion of the project. - See additional requirements in MM BIO-16.		
IMPACT BIO-3: Temporary and permanent losses of native vegetation communities	**APM BIO-1: Preconstruction Surveys.** See above. **APM BIO-2: Minimize Vegetation.** See above. **APM BIO-4: Best Management Practices.** See above. **APM BIO 5: Biological Monitors.** See above. **APM BIO-6: Worker Environmental Awareness Program.** See above.	See above.	See above.	See above.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	APM BIO-9: Facility Siting. See above. **APM BIO-10: Invasive Plant Management.** See above. **MM BIO-1: Preconstruction Surveys.** See above. **MM BIO -2: Reclamation Plan.** See above. **MM BIO 3: Special Status Plants Restoration and Compensation.** See above.			
IMPACT BIO-4: Introduction of invasive, non-native, or noxious plants species	**APM BIO-1: Preconstruction Surveys.** See above. **APM BIO-2: Minimize Vegetation.** See above. **APM BIO-4: Best Management Practices.** See above. **APM BIO 5: Biological Monitors.** See above. **APM BIO-6: Worker Environmental Awareness Program.** See above. **APM BIO-9: Facility Siting.** See above. **APM BIO-10: Invasive Plant Management.** See above.	See above.	See above.	See above.
IMPACT BIO-4: Introduction of invasive, non-native, or noxious plants species	**MM BIO-4: Model Invasive Plant Management Plan on the BLM Las Vegas Office DRAFT Weed Plan.** The Invasive Plant Management Plan to be developed (APM BIO-10) will be modeled on the BLM Las Vegas Office DRAFT Weed Plan. The plan will include operation and maintenance activities, as well as construction activities. The content of the plan will include results of the noxious weed inventory, identification of problem areas, preventative measures, treatment methods, agency-specific requirements, monitoring requirements, and herbicide treatment protocol. The plan will include best management practices that require that any biological material brought on-site (e.g. hay bales that may be used for controlling stormwater under APM GEO-2, and native mixes for vegetation in MM BIO-2) will be certified weed-free. The plan will be submitted to both the California and the Nevada resource agencies and to the CPUC for approval prior to construction authorization.	Ensure that an Invasive Plant Management Plan is developed as specified in MM BIO-4 and submitted to both the California and the Nevada resource agencies and to the CPUC for approval prior to construction.	Prior to construction	Invasive plant species are prevented from spreading throughout the proposed project area due to construction activities.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands	**APM BIO-2: Minimize Vegetation Impacts.** See above.	See above.	See above.	See above.
IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands	**APM BIO-3: Avoid Impacts on State and Federal Jurisdiction Wetlands. Avoid Impacts on State and Federal Jurisdiction Wetlands.** Construction crews would avoid impacting the streambeds and banks of streams along the route to the extent possible. As applicable, the necessary permits would be obtained from the appropriate agencies. Impacts would be mitigated based on the terms of the permits. No streams with flowing waters capable of supporting special-status species would be expected to be impacted by the proposed project.	Ensure that streambeds and banks of streams are minimally impacted, and the Streambed Alteration Agreement (SAA) is followed as required by the CDFG.	During construction	APM implemented.
IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands	**APM BIO-4: Best Management Practices.** See above. **APM BIO-9: Facility Siting.** See above. **APM HAZ-2: Hazardous Materials and Waste Handling Management.** See below. **APM HAZ-5: SPCCP and Hazardous Materials Business Plan.** See below. **APM W-1: Avoid Stream Channels.** See below. **APM W-2: Erosion Control and Hazardous Material Plans.** See below. **APM W-4: Avoid Active Drainage Channels.** See below. **APM W-9: Prepare and Implement an Approved SWPPP.** See below.	See above/below.	See above/below.	See above/below.
IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands	**MM BIO-5: Jurisdictional Delineation.** Conduct a formal jurisdictional delineation within the boundaries of the project area once final engineering for the location of project-specific features is complete. This will be conducted prior to construction and is required in order to apply for permits, if needed, with USACE, California RWQCBs, and CDFG. A copy of the jurisdictional delineation will be provided to the CPUC.	Ensure that the jurisdictional delineation completed and associated permits are acquired. See additional requirements in MM BIO-5.	Prior to construction	Jurisdictional delineation is completed and associated permits are acquired.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands	**MM BIO-6: Drainage Crossings Design.** If drainages cannot be avoided by infrastructure placement, then the applicant will design drainage crossings to accommodate estimated peak flows and ensure that natural volume capacity can be maintained throughout construction and upon post-construction restoration. This measure is necessary to minimize the amount of erosion and degradation to which drainages are subject.	Ensure that drainage crossings are specifically designed to accommodate estimated peak flows and natural volume capacity throughout construction and post-construction restoration.	During and after construction	Drainage crossings accommodate peak flows and natural volume capacity throughout construction and post-construction restoration.
IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands	**MM BIO-7: Mitigation Monitoring Plan for Affected Jurisdictional Areas.** The applicant will develop a Mitigation Monitoring Plan for affected jurisdictional areas within established riparian areas, as needed, for submittal to the USACE for review and approval. The plan will outline measures to accomplish restoration, provide criteria for restoration success, and/or provide compensation ratios. This measure is needed to compensate for loss of waters and riparian vegetation that provide suitable habitat for special-status and sensitive species, and provide important hydrological and water quality functions in the desert environment. Monitoring and reporting, likely for up to 3 to 5 years post-construction, will be required, pending consultation with agencies. A copy of the approved Mitigation Monitoring Plan will be provided to the CPUC and CDFG.	Ensure that a Mitigation Monitoring Plan for affected jurisdictional areas is developed and submitted for approval as specified in MM BIO-7.	Prior to and after construction	Monitoring and reporting for affected jurisdictional areas within established riparian areas is conducted for up to 3 to 5 years post construction.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-4: Best Management Practices.** See above. **APM BIO-5: Biological Monitors.** See above. **APM BIO-6: Worker Environmental Awareness Program.** See above.	See above.	See above.	See above.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-7: Avoid Impacts on Active Nests.** SCE would conduct project-wide raptor and nesting bird surveys and remove trees or other vegetation, if necessary, outside of the nesting season (nesting season in the project area is late February to early July). If vegetation or existing structures containing a raptor nest or other active nest needed to be removed during the nesting season, or if work was scheduled to take	Ensure that project-wide raptor and nesting bird surveys are conducted, and if trees or other vegetation are removed, they are removed outside of the nesting season as specified in APM BIO-	Prior to and during construction	Impacts on active nests are avoided or agency coordination is completed and

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	place in close proximity to an active nest on an existing transmission or subtransmission tower or pole, SCE would coordinate with the USFWS, CDFG, and/or the NDOW as appropriate to obtain written verification prior to moving the nest.	7. See additional requirements in APM BIO-7.		authorizations obtained.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-8: Avian Protection.** All transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006).	See requirements in APM BIO-8.	Prior to and during construction	APM implemented.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-9: Facility Siting.** See above.	See above.	See above.	See above.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-11: Desert Tortoise Measures.** The applicant or a qualified consultant would provide for the following to reduce impacts on desert tortoise: • The applicant cannot begin construction until issuance and acceptance of the USFWS Biological Opinion, the CDFG 2081 permit, and NDOW authorization. Additionally, compliance discussions with Clark County and Boulder City must occur prior to construction that resolve and outline the specific compensation fees or additional mitigation measures needed for loss of desert tortoise habitat. A copy of the USFWS Biological Opinion and documentation of any compliance discussions with Clark County and Boulder City will be provided to the CPUC. • A field contact representative (FCR) would be designated and would oversee compliance monitoring activities and coordination with authorizing agency(s). Compliance activities would at a minimum include conducting preconstruction surveys, assuring proper removal of desert tortoise, staffing biological monitors on construction spreads, and upholding all conditions authorized. The field contact representative would also oversee all compliance documentation including daily observation reports, non-compliance and corrective action reports, and final reporting to any authorized	- Ensure that preconstruction surveys for Desert Tortoise are conducted within 48 hours of site-specific project activities as specified in APM BIO-11. - Ensure that all compliance documentation is submitted as specified in APM BIO-11. Incidents considered to be in non-compliance must be immediately documented. - Ensure that the applicant implements a Raven Management Program. - Ensure that construction activities are halted in the event of injury or death to a desert tortoise or other events specified in APM BIO-11. - Ensure that work area boundaries associated with	Prior to and during construction	See MM BIO-12.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	agency upon project completion. • All work area boundaries associated with temporary and permanent disturbances would be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers would strictly limit activities and vehicles to the designated work areas. • Crushing/removal of perennial vegetation in work areas would be avoided to the maximum extent practicable. • All trash and food items generated by construction and maintenance activities would be promptly contained and regularly removed from the project site(s) to reduce the attractiveness of the area to common ravens. • Pets would not be allowed in working areas unless restrained in a kennel. • Where possible, motor vehicles would be limited to maintained roads and designated routes. • Vehicle speed within the project area, along ROW maintenance routes, and along existing access roads would not exceed 20 miles per hour. Speed limits would be clearly marked and all workers would be made aware of these limits. • Constructed road berms would be less than 12 inches in height and have slopes of less than 30 degrees. • Construction monitoring would employ a designated field contact representative, authorized biologist(s), and qualified biologist(s) approved by the BLM during the construction phase. At a minimum, qualified biologist(s) would be present during all activities in which encounters with tortoises could occur. A qualified biologist is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. An authorized biologist is defined as a wildlife biologist who has been authorized to handle desert tortoises by the USFWS. A field contact representative is defined as a person designated by the	temporary and permanent disturbances are marked and crushing/removal of perennial vegetation in work areas is minimized. - Ensure that tortoises found on the surface are relocated to less than 1,000 feet away and handled according to the Guidelines for Handling Desert Tortoise During Construction Projects (Desert Tortoise Council 1999). See also the handling requirements specified in MM BIO-12. - See additional requirements in APM BIO-11.		

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with agency compliance officer(s). • Preconstruction clearance surveys would be conducted within 48 hours of initiation of site-specific project activities, following USFWS protocol (USFWS 1992). The goal of a clearance survey is to find all tortoises on the surface and in burrows that could be harmed by construction activities. Surveys would cover 100 percent of the acreage to be disturbed. All potential tortoise burrows within 100 feet of construction activity would be marked. Tortoise burrows would be avoided to the extent practicable, but would be excavated if they would be crushed by construction activities. • Any tortoise found on the surface would be relocated to less than 1,000 feet away. Tortoises would be handled carefully following the guidelines given in Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999). Tortoises would be handled with new latex gloves each time to avoid transmission of disease, and handlers would especially note guidelines for precautions to be taken during high-temperature periods. • If a potential tortoise burrow were required to be excavated, the biologist would proceed according to the guidelines given in Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999). Tortoises removed from burrows would be relocated to an artificial burrow (Desert Tortoise Council 1999). The entrance of the artificial burrow would be blocked until construction activities in the area were over (Desert Tortoise Council 1999). • For activities conducted between March 15 and November 1 in desert tortoise habitat, all activities in which encounters with tortoises might occur would be monitored by a qualified or authorized biologist. The biologist would be informed of tortoises relocated during preconstruction surveys so that he or she could			

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	watch for the relocated tortoises in case they attempted to return to the construction site. The qualified or authorized biologist would watch for tortoises wandering into the construction areas, check under vehicles, examine excavations and other potential pitfalls for entrapped animals, examine exclusion fencing, and conduct other activities to ensure that death or injuries of tortoises were minimized. • No overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) would be left unfenced or uncovered; such hazards would be eliminated each day prior to the work crew and biologist leaving the site. Large or long-term project areas would be enclosed with tortoise-proof fencing. Fencing would be removed when restoration of the site was completed. • Any incident occurring during project activities that was considered by the biological monitor to be in non-compliance with the mitigation plan would be documented immediately by the biological monitor. The field contact representative would ensure that appropriate corrective action was taken. Corrective actions would be documented by the monitor. The following incidents would require immediate cessation of the construction activities causing the incident, including (1) imminent threat of injury or death to a desert tortoise; (2) unauthorized handling of a desert tortoise, regardless of intent; (3) operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads; and (4) conducting any construction activity without a biological monitor where one was required. If the monitor and field contact representative did not agree, the federal agency's compliance officer would be contacted for resolution. All parties could refer the resolution to the federal agency's authorized officer. • Results of biological monitoring and status of construction will be detailed in daily reports by biological monitors. These reports will be submitted to the authorized biologist on a daily basis and to the FCR on a weekly basis (at minimum). The authorized biologist will notify the FCR within 24 hours of any action that involves harm to a desert			

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	tortoise, or involves a blatant disregard by construction personnel for the APMs or MMs designed to minimize impacts on desert tortoise or other wildlife. The authorized biologist will submit to the USFWS, NDOW, CDFG, and CPUC a summary of all desert tortoises seen, injured, killed, excavated, and handled at the end of the project or within 2 working days of when desert tortoises are harmed. • All construction personnel, including subcontractors, would complete a WEAP. This instruction would include specific desert tortoise training on distribution, general behavior and ecology, identification, protection measures, reporting requirements, and protections afforded by state and federal endangered species acts. • Parked vehicles would be inspected prior to being moved. If a tortoise were found beneath a vehicle, the authorized biologist would be contacted to move the animal from harm's way, or the vehicle would not be moved until the desert tortoise left of its own accord. The authorized biologist would be responsible for taking appropriate measures to ensure that any desert tortoise moved in this manner was not exposed to temperature extremes that could be harmful to the animal. • Should any desert tortoise be injured or killed, all activities would be halted, and the field contact representative and/or authorized biologist immediately contacted. The field contact representative and/or authorized biologist would be responsible for reporting the incident to the authorizing agencies. • A report to the USFWS would be produced reporting all tortoises seen, injured, killed, excavated, or handled. GPS locations of live tortoises would be reported. • The applicant would implement a Raven Management Program that would consist of: (1) an annual survey to identify raven nests on towers and any tortoise remains at tower locations; this information would be relayed to the BLM so that the ravens and/or their nests in these towers could be targeted for removal, (2) SCE making an annual or one time contribution to an overall raven reduction			

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	program in the California or Nevada desert, with an emphasis on raven removal in the vicinity of this project.			
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-12: Desert Bighorn Sheep Measures.** The applicant would consult with the BLM, USFWS, and NDOW regarding conservation measures to avoid impacts on desert bighorn sheep during construction. Project areas with the potential to impact bighorn sheep include the proposed transmission line route through the McCullough Range and the telecommunication route segment in the southern Eldorado Valley between the Highland Range and the Southern McCullough Range. Avoidance and minimization measures could include such elements as preconstruction surveys, biological monitoring, and timing construction activities to avoid bighorn sheep active seasons. Construction requiring the use of helicopters would be conducted outside of bighorn lambing season (April through October) and the dry summer months when bighorn may need to access artificial water sources north of the propose route in the McCullough Range (June through September).	See requirements in APM BIO-12.	Prior to and during construction	See MM BIO-13.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-13: Western Burrowing Owl Measures.** Where project ground-disturbing activities would occur prior to the burrowing owl breeding season (mid-March to August), all burrows, holes, crevices, or other cavities in suitable habitat on the project, within the limits of proposed ground disturbance, would be thoroughly inspected by a qualified biologist before collapsing. This would discourage owls from breeding on the construction site. Other species using burrows would be relocated prior to collapsing burrows. If construction were to be initiated after the commencement of the breeding season and burrowing owls could be seen within areas to be affected by ground construction activities, behavioral observations would be done by a qualified biologist to determine their breeding status. If breeding were observed, the nest area would be avoided, with an appropriately sized buffer sufficient to prevent disturbance during construction activities until the chicks fledged.	See requirements in APM BIO-13.	During construction	See MM BIO-16.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**APM BIO-14: Gila Monster and Chuckwalla Measures.** The following measures are the current NDOW construction site protocols for the Gila monster (NDOW 2005). These protocols are applicable for the Gila monster in both the Nevada and California sections of the project, and	Ensure that all workers are trained through the Worker Environmental Awareness Program (WEAP) about Gila	Prior to and during construction	Impacts on Gila monsters are avoided or Gila Monsters are

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	applicable for the chuckwalla in the Nevada section of the project. Through the WEAP, workers and other project personnel should (at a minimum) know how to: (1) identify Gila monsters and be able to distinguish them from other lizards such as chuckwallas and banded geckos; (2) report any observations of Gila monsters (in Nevada) to the biological monitor for notification of the NDOW; (3) be alerted to the consequences of a bite resulting from carelessness or unnecessary harassment; and (4) be aware of protective measures provided under state law. • Live Gila monsters found in harm's way on the construction site would be captured and then detained in a cool, shaded environment (<85 degrees Fahrenheit) by the project biologist or equivalent personnel until a NDOW biologist can arrive for documentation purposes. Despite the fact that a Gila monster is venomous and can deliver a serious bite, its relatively slow gait allows for it to be easily coaxed or lifted into an open bucket or box, carefully using a long handled instrument such as a shovel or snake hook (note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points). • A clean 5-gallon plastic bucket with a secure, vented lid; an 18-inch x 18-inch x 4-inch plastic sweater box with a secure, vented lid; or a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location (e.g., GPS record), date, time, and circumstances (e.g., biological survey or construction) and habitat description (vegetation, slope, aspect, and substrate) would also be provided to NDOW. • Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses would not be covered by NDOW. However, NDOW would be immediately notified during	Monsters as specified in APM BIO-14. Ensure that Gila Monsters are handled as specified in APM BIO-14. See additional requirements in APM BIO-14.		handled as specified in APM BIO-14.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	normal business hours. If an animal is killed or found dead, the carcass would be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, habitat, and mapped location. • Should NDOW's assistance be delayed, biological or equivalent acting personnel on site may be requested to remove and release the Gila monster out of harm's way. Should NDOW not be immediately available to respond for photo-documentation, a 35-mm camera or equivalent (5 mega-pixel digital minimum preferred) would be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures, preferably on slide film (.tif or .jpg digital format) would be provided to NDOW. Pictures would include the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).			
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**MM BIO-17: Gila Monster Compliance.** The most current NDOW construction site protocols for the Gila monster (NDOW 2007) will be followed by the applicant in both Nevada and California portions of the project. To reduce impacts on Gila monster, all locations of Gila monster found within the project area during surveys and construction work will be reported to NDOW and the CDFG	Ensure most current NDOW construction site protocols for the Gila monster (NDOW 2007) are followed and that all locations of Gila monster found within the project area during surveys and construction work are reported to NDOW and the CDFG.	Prior to and during construction	Impacts on Gila monsters are avoided.
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**MM BIO-18: Avian Protection Plan.** To reduce impacts on golden eagles and raptors, the applicant shall submit an Avian Protection Plan for approval to the BLM within 6 months of the issuance of any ROW grant for the project. The Plan shall be prepared according to guidance provided by the USFWS (USFWS 2010).The Avian Protection Plan must be implemented within one year from the date of any ROW grant Notice to Proceed.	Verify Avian Protection Plan prepared in accordance with MM BIO-18 submitted for approval to the BLM within 6 months of the issuance of any ROW grant for the project.	Prior to and during construction	Impacts on golden eagles and raptors are avoided.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites	**MM BIO-1: Preconstruction Surveys.** See above. **MM BIO-8: Reduce Night Lighting.** See above. **MM BIO-10: Biological Monitors.** See above. **MM BIO-12: Desert Tortoise Impacts Reduction Measures.** See above. **MM BIO-13: Desert Bighorn Sheep Impacts Reduction Measures.** See above. **MM BIO-14: American Badger Impacts Reduction Measures.** See above. **MM BIO-15: Migratory Birds and Raptors Impacts Reduction Measures.** See above. **MM BIO-16: Burrowing Owl Impacts Reduction Measures.** See above.	See above.	See above.	See above.
IMPACT BIO-7: Conflict with the Provisions of local ordinances or policies	**APM BIO-2: Minimize Vegetation Impacts.** See above. **APM BIO-3: Avoid Impacts on State and Federal Jurisdiction Wetlands.** See above. **MM BIO-2: Reclamation Plan.** See above. **MM BIO-3: Special Status Plants Restoration and Compensation.** See above.	See above.	See above.	See above.
3.5 Cultural Resources and Native American Values				
IMPACT CR-1: Impacts to Cultural Resource 36-10315 (CA-SBR-10315H)	**APM CR-1: Conduct Archaeological Inventory of Areas that May Be Disturbed.** Conduct an intensive archaeological inventory of all areas that may be disturbed during construction and operation of the proposed project. A complete cultural resources inventory of the project area has been conducted, details of which are contained in a technical report. Should the project substantially change and areas not previously inventoried for cultural resources become part of the construction plan, the applicant would ensure that such additional areas are inventoried for cultural resources prior to any disturbance. All surveys would be conducted and documented according to applicable laws, regulations,	Ensure that an archaeological inventory is conducted as specified in APM CR-1. See additional requirements in APM CR-1.	Prior to and after construction	APM fully implemented as specified.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	and professional standards.			
IMPACT CR-1: Impacts to Cultural Resource36-10315 (CA-SBR-10315H)	**APM CR-2: Avoid and Minimize Impacts on Significant Cultural Resources Wherever Feasible.** Avoid and minimize impacts on significant or potentially significant cultural resources wherever feasible. To the extent practical, the applicant would avoid or minimize impacts on archaeological resources, regardless of its CRHR or NRHP eligibility status. This includes siting all ground-disturbing activities and other project components outside a buffer zone established around each recorded archaeological site within or immediately adjacent to the right-of-way.	See requirements in APM CR-2.	During construction	APM implemented.
IMPACT CR-1: Impacts to Cultural Resource 36-10315 (CA-SBR-10315H)	**APM CR-3b: Evaluate Significance of Potentially Eligible Buildings and Structures.** Evaluate the significance of buildings and structures potentially eligible for CRHR or NRHP listing. Evaluation would take into account engineering, aesthetic, architectural, and other relevant attributes of each property. Buildings and structures would be evaluated for historical significance per CRHR eligibility Criteria 1, 2, and 3, and NRHP Criteria A, B, and C. A report of the evaluation of each building or structure would be prepared providing a rationale for an assessment of significance consistent with professional standards and guidelines. The report would be filed with the appropriate Information Center of the California Historical Resources Information System.	Ensure that a report evaluating buildings and structures for historical significance as specified in APM CR-3b is filed with the appropriate Information Center of the California Historical Resources Information System.	Prior to construction	All historically significant buildings or structures that may be impacted are identified and evaluated as specified in APM CR-3b.
IMPACT CR-1: Impacts to Cultural Resource 36-10315 (CA-SBR-10315H)	**APM CR-4b: Implement Measures to Minimize Impacts on Significant Buildings and Structures.** Prior to construction and during construction, the applicant would implement the following measures to minimize unavoidable impacts on significant buildings and structures: • Locate proposed project facilities to minimize effects on significant buildings or structures. • If impacts on significant buildings or structures cannot be avoided, document significant architectural and engineering attributes consistent with the documentation standards of the National Park Service Historic American Buildings Survey/Historic American Engineering Record. • File reports and other documentation with the BLM, National Park	Ensure that reports are filed as specified in APM CR-4b. See additional requirements in APM CR-4b.	Prior to and during construction	Impacts on historically significant buildings or structures are avoided or minimized.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	Service, if appropriate, and appropriate Information Center of the California Historical Resources Information System.			
IMPACT CR-2: Impacts to Previously Unidentified Cultural Resources	**APM CR-1: Conduct Archaeological Inventory of Areas that May Be Disturbed.** See above. **APM CR-2b. Conduct a Preconstruction Worker Environmental Awareness Program (see BIO-6, PALEO-3, and W-11).** The program would be presented to all proposed project personnel who have the potential to encounter and alter unique archaeological sites, historical resources, or historic properties, or properties that may be eligible for listing in the CRHR or NRHP. This includes construction supervisors as well as field construction personnel. No construction worker would be involved in ground-disturbing activities without having participated in the Worker Environmental Awareness Program.	See above. Ensure that all proposed project personnel who have the potential to encounter culturally-sensitive sites including construction workers have participated in the Worker Environmental Awareness Program.	See above. Prior to and during construction	See above. No workers involved in ground-disturbing activities without having participated in the Worker Environmental Awareness Program
IMPACT CR-2: Impacts to Previously Unidentified Cultural Resources	**APM CR-5: Prepare and Implement a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan.** During construction it is possible that previously unknown archaeological or other cultural resources or human remains could be discovered. Prior to construction, the applicant would prepare a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan to be implemented if an unanticipated discovery is made. At a minimum the plan would detail the following elements: • Worker and supervisor training in the identification of cultural remains that could be found in the proposed project area, and the implications of disturbance and collection of cultural resources pursuant with the Archaeological Resources Protection Act of 1979 • Worker and supervisor response procedures to be followed in the event of an unanticipated discovery, including appropriate points of contact for professionals qualified to make decisions about the potential significance of any find • Identities of persons authorized to stop or redirect work that could affect the discovery, and their on-call contact information	Ensure that a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan is prepared and implemented as specified in APM CR-5.	Prior to and during construction	Impacts on culturally-sensitive resources are avoided or minimized.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	• Procedures for monitoring construction activities in archaeologically sensitive areas • A minimum radius around any discovery within which work would be halted until the significance of the resource has been evaluated and mitigation implemented as appropriate • Procedures for identifying and evaluating the historical significance of a discovery • Procedures for consulting Native Americans when identifying and evaluating the significance of discoveries involving Native American cultural materials • Procedures to be followed for treatment of discovered human remains per current state law and protocol developed in consultation with Native Americans.			
IMPACT CR-2: Impacts to Previously Unidentified Cultural Resources	**APM CR-6: Inadvertent Discovery of Human Remains.** Any human remains discovered during project activities in California would be protected in accordance with current state law, specifically Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641. If human remains determined not to be Native American are unclaimed, they would be treated under the appropriate State of Nevada statutes, including but not limited to Nevada Revised Statutes Chapter 440 and the regulations of the applicable land management agency. In the event that human remains are recovered on private lands, the landholder would have the right to designate the repository for the remains if they are determined not to be Native American or if their family affiliation cannot be determined. The provisions of the Native American Grave Protection and Repatriation Act are applicable when Native American human remains are found on federal land (BLM land in California and Nevada). The discovery of human remains would be treated as defined in the Construction Monitoring and Unanticipated Cultural Resources Discovery Plan.	See requirements in APM CR-6.	During construction	Impacts on culturally-sensitive resources are avoided or treated in accordance with all applicable laws.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT CR-2: Impacts to Previously Unidentified Cultural Resources	**MM CR-1: Cultural Resources Monitoring.** The applicant will retain a cultural resources monitor who meets the Secretary of the Interior Standards of a Qualified Professional Archaeologist prior to commencing construction or geotechnical test trenching on the project. The archaeologist will need to be approved by the BLM and will provide construction monitoring for any geotechnical studies that require trench excavation. As mentioned in APM GEO-1, five of the tower installations and 20 percent of the ground-trenching activities are in archaeologically sensitive areas. Monitoring in these areas will be determined by the BLM prior to construction. Monitoring is necessary because a potential for cultural resources beneath desert pavement surfaces on alluvial planes was recently determined. Such conditions exist throughout much of the EITP project area. This monitoring effort would be used to protect potential resources and to provide data to help confirm or deny the theory of desert pavement development that would allow for buried cultural resources. BLM reserves the right to increase the amount of monitoring at any time if conditions reveal the necessity. The archaeologist will present to the BLM for approval, no less than 60 days prior to commencement of construction, a monitoring plan; copies of which will also be submitted to the CPUC by the archaeologist. The archaeologist will also provide a report of findings after the monitoring has been completed. Because this geoarchaeological sensitivity has not been widely tested, the BLM is requiring only a small sample of monitoring at this time; further monitoring will only be required if the need is proven.	Ensure that the cultural resources monitoring plan is presented to the BLM for approval no less than 60 days prior to commencement of construction and a copy is sent to the CPUC. See additional requirements in MM CR-1.	Prior to and during construction	Impacts on culturally-sensitive resources are avoided or minimized.
IMPACT CR-2: Impacts to Previously Unidentified Cultural Resources	**MM CR-3: Archaeological Resources Protection Act (ARPA) Training.** Prior to construction, the applicant will provide ARPA training with the preconstruction Worker Environmental Awareness Program (WEAP; APM CR-2b). As required for the WEAP, ARPA training will be presented to all proposed project personnel who have the potential to encounter and alter unique archaeological sites, historical resources, or historic properties, or properties that may be eligible for listing in the NRHP. This includes construction supervisors as well as field	Ensure that all proposed project personnel who have the potential to encounter culturally-sensitive sites including construction workers have participated in ARPA training.	Prior to and during construction	No workers involved in ground-disturbing activities without having participated in the ARPA

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	construction personnel. No construction worker would be involved in ground-disturbing activities without having participated in the ARPA training portion of the WEAP.			training.
IMPACT CR-3: Unanticipated Discovery of Human Remains	**APM CR-6: Inadvertent Discovery of Human Remains.** See above.	See above.	See above.	See above.
Removal of portions of historic resources (NEPA Only Impact).	**MM CR-2: Historic American Engineering Record Recordation.** Prior to construction of the EITP, the applicant will retain a cultural resources specialist qualified to conduct HAER recordation, meeting the Secretary of the Interior Standards. The qualified cultural resources specialist will conduct HAER recordation on Cultural Resource 36-10315 (CA-SBR-10315H) HAER recordation will be conducted in accordance the Secretary of the Interior's Standards for Architectural and Engineering Documentation, following Documentation Criteria Level II, as appropriate, for the level of significance assigned to the resources.	See requirements in MM CR-2.	Prior to and during construction	Cultural resources specialist qualified to conduct HAER recordation, Standards retained by SCE. Resources documented according to HAER level 2 standards
3.6 Geology, Soils, Minerals, and Paleontology				
IMPACT GEO-1: Rupture of Earthquake Fault Across the Transmission Line Route	**APM GEO-1: Geotechnical Engineering and Engineering Geology Study.** Prior to final design of substation facilities and transmission and subtransmission line tower foundations, a combined geotechnical engineering and engineering geology study would be conducted to identify site-specific geologic conditions and potential geologic hazards in sufficient detail to support sound engineering practices.	Ensure that a Geotechnical Engineering and Engineering Geology Study is completed.	Prior to construction	See MM GEO-2.
IMPACT GEO-2: Exposure of People or Structures to Potential Adverse Effects Due to Seismic Ground Shaking	**APM GEO-1: Geotechnical Engineering and Engineering Geology Study.** See above.	See above.	See above.	See above.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT GEO-2: Exposure of People or Structures to Potential Adverse Effects Due to Seismic Ground Shaking	**APM GEO-2: Recommended Practices for Seismic Design of Substations.** For new substation construction, specific requirements for seismic design would be followed based on the Institute of Electrical and Electronics Engineers (IEEE) Standards Association Standard 693, "Recommended Practices for Seismic Design of Substations," which includes probabilistic earthquake hazard analysis. Other project elements would be designed and constructed in accordance with the appropriate industry standards, as well as good engineering and construction practices and methods.	See requirements in APM GEO-2.	Prior to and during construction	APM fully implemented as specified.
IMPACT GEO-3: Exposure of People or Structures to Potential Adverse Effects Due to Seismic-Related Ground Failure	**APM GEO-1: Geotechnical Engineering and Engineering Geology Study.** See above. **APM GEO-2: Recommended Practices for Seismic Design of Substations.** See above.	See above.	See above.	See above.
IMPACT GEO-4: Exposure of People or Structures to Adverse Effects Due to Landslides	**APM GEO-1: Geotechnical Engineering and Engineering Geology Study.** See above.	See above.	See above.	See above.
IMPACT GEO-4: Exposure of People or Structures to Adverse Effects Due to Landslides	**MM GEO-1: Monitor and Mitigate Damage to Tower Structures.** SCE will contact the California Department of Water Resources and the Nevada Division of Water Resources on an annual basis to determine if groundwater withdrawals pose a potential for threatening to cause ground subsidence within the project area. If physical evidence proves groundwater withdrawals are threatening tower locations, SCE will develop a plan, following their operations and maintenance policies, to mitigate potential damage to tower structures using standard foundation remediation techniques available.	Ensure that a plan to mitigate damage to tower structures due to subsidence is developed if physical evidence proves groundwater withdrawals are threatening tower locations. See additional requirements in MM GEO-1.	During and after construction (annually)	Damage to tower structures is avoided.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT GEO-5: Erosion of Soil at Towers and the Substation and Along Access Roads	**APM GEO-3: Project Construction Stormwater Pollution Prevention Plan Protection Measures Regarding Soil Erosion / Water Quality.** Transmission line and substation construction activities would be conducted in accordance with the soil erosion/water quality protection measures to be specified in the project construction stormwater pollution prevention plan (SWPPP). New access roads would be designed to minimize ground disturbance from grading. They would follow natural ground contours as closely as possible, and would include specific features for road drainage. Measures could include water bars, drainage dips, side ditches, slope drains, and velocity reducers. Where temporary crossings would be constructed, they would be restored and repaired as soon as possible after completion of the discrete action associated with construction of the line in the area.	See requirements in APM GEO-3.	During construction	See MM GEO-3.
IMPACT GEO-5: Erosion of Soil at Towers and the Substation and Along Access Roads	**MM GEO-2: Geotechnical Engineering Study.** The applicant will prepare a geotechnical engineering study prior to the final project design to identify site-specific geological conditions and potential geologic hazards. The data collected from the study will be used to guide sound engineering practices and to mitigate potential geologic hazards.	Ensure that a Geotechnical Engineering Study is completed and the results applied as specified in MM GEO-2.	Prior to and during construction	Potential geologic hazards are identified and engineering practices modified accordingly.
IMPACT GEO-6: Structural Failure of Towers and Substation Facility Due to Unstable Soil Conditions Resulting in Subsidence or Collapse	**APM GEO-1: Geotechnical Engineering and Engineering Geology Study.** See above. **APM GEO-2: Recommended Practices for Seismic Design of Substations.** See above. **MM GEO-1: Monitor and Mitigate Damage to Tower Structures.** See above.	See above.	See above.	See above.
IMPACT GEO-6: Structural Failure of Towers and Substation Facility Due to Unstable Soil Conditions Resulting in Subsidence or Collapse	**MM GEO-3: Preparation and Implementation of SWPPP.** The applicant will prepare a SWPPP for review and approval by the Lahontan Regional Water Quality Control Board (Region 6) and the Clark County Stormwater Quality Management Committee that addresses construction and post-construction project-related ground disturbances and associated erosion. The plan will provide the necessary engineering controls and procedures to minimize impact to the ground surface caused	Ensure that a SWPPP is prepared and approved as specified in MM GEO-3.	Prior to, during, and after construction	Impacts to ground surfaces caused by construction, operation, and maintenance activities are

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	by construction, operation, and maintenance activities. A copy of the approved plan will also be submitted to the CPUC.			minimized.
IMPACT GEO-7: Structural Failure of Towers of Substation Facility Due to Expansive Soils	**APM GEO-1: Geotechnical Engineering and Engineering Geology Study.** See above.	See above.	See above.	See above.
IMPACT GEO-7: Structural Failure of Towers of Substation Facility Due to Expansive Soils	**MM GEO-4: Expansive Soils Mitigation.** The applicant will prepare a geotechnical study of the areas of expansive soil(s) identified in APM GEO-1 to develop appropriate design and mitigation measures prior to construction.	Ensure that the geotechnical study is completed and the results applied as specified in MM GEO-4.	Prior to construction	Potential hazards due to expansive soils are identified and engineering practices modified accordingly.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-1: Retention of Paleontologist and Preparation of a Paleontological Resource Management Plan.** Prior to construction, a certified paleontologist would be retained by SCE to supervise monitoring of construction excavations and to produce a Paleontological Resource Management Plan (PRMP) for the proposed project. This PRMP would be prepared and implemented under the direction of the paleontologist and would address and incorporate APMs PALEO-2 through PALEO-8. Paleontological monitoring would include inspection of exposed rock units and microscopic examination of matrix to determine whether fossils are present. The monitor would have authority to temporarily divert grading away from exposed fossils in order to recover the fossil specimens. More specific guidelines for paleontological resource monitoring could be found in the PRMP.	Ensure that a PRMP is prepared and implemented as specified in APM PALEO-1. See additional requirements in APM PALEO-1.	Prior to and during construction	Impacts on paleontological resources are avoided or paleontological resources are recovered and preserved.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-2: Pre-construction Paleontological Field Survey.** The paleontologist and/or his or her designated representative would conduct a pre-construction field survey of the project area underlain by Tertiary rock units and older alluvium. Results of the field inventory and associated recommendations would be incorporated into the PRMP.	Ensure that a preconstruction paleontological field survey is completed and the results incorporated into the PRMP as specified in APM PALEO-2.	Prior to construction	Impacts on paleontological resources are avoided or paleontological resources are

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
				recovered and preserved.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-3: Worker Environmental Awareness Program (see BIO-6, CR-2b, W-11).** A Worker Environmental Awareness Program would be provided to construction supervisors and crew for awareness of requirements regarding the protection of paleontological resources and procedures to be implemented in the event fossil remains are encountered by ground-disturbing activities.	Ensure that the WEAP includes paleontological resources training as specified in APM PALEO-3.	Prior to construction	Impacts on paleontological resources are avoided or paleontological resources are recovered and preserved.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-4: Construction Monitoring.** Ground-disturbing activities would be monitored on a part-time or full-time basis by a paleontological construction monitor only in those parts of the project area where these activities would disturb previously undisturbed strata in rock units of moderate and high sensitivity. Quaternary alluvium, colluvium, and Quaternary landslide deposits have a low paleontological sensitivity level and would be spot-checked on a periodic basis to ensure that older underlying sediments were not being penetrated. Monitoring would not be implemented in areas underlain by younger alluvium unless these activities had reached a depth 5 feet below the present ground surface and fine-grained strata were present. Ground-disturbing activities in areas underlain by rock units of low sensitivity would be monitored on a quarter-time basis or spot-checked if fine grained strata were present.	See requirements in APM PALEO-4.	During construction	Impacts on paleontological resources are avoided or paleontological resources are recovered and preserved.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-5: Recovery and Testing.** If fossils were encountered during construction, construction activities would be temporarily diverted from the discovery and the monitor would notify all concerned parties and collect matrix for testing and processing as directed by the project paleontologist. In order to expedite removal of fossil-bearing matrix, the monitor may request heavy machinery to assist in moving large quantities of matrix out of the path of construction to designated stockpile areas. Construction would resume at the discovery location once the necessary matrix was stockpiled, as determined by the paleontological monitor. Testing of stockpiles would consist of screen washing small samples to determine if important fossils were present. If such fossils were present,	Ensure that construction activities are halted if fossils are encountered. See additional requirements in APM PALEO-5.	During construction	Impacts on paleontological resources are avoided or paleontological resources are recovered and preserved.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	the additional matrix from the stockpiles would be water screened to ensure recovery of a scientifically significant sample. Samples collected would be limited to a maximum of 6,000 pounds per locality.			
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-6: Monthly Progress Reports.** The project paleontologist would document interim results of the construction monitoring program with monthly progress reports. Additionally, at each fossil locality, field data forms would record the locality, stratigraphic columns would be measured, and appropriate scientific samples would be submitted for analysis.	Ensure that monthly progress reports are completed. See additional requirements in APM PALEO-6.	During construction	Impacts on paleontological resources are avoided or paleontological resources are recovered and preserved.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-7: Analysis of and Preparation of Final Paleontological Resource Recovery Report.** The project paleontologist would direct identification, laboratory processing, cataloging, analysis, and documentation of the fossil collections. When appropriate, and in consultation with SCE, splits of rock or sediment samples would be submitted to commercial laboratories for microfossil, pollen, or radiometric dating analysis. After analysis, the collections would be prepared for curation (see APM PALEO-8). A final technical report would be prepared to summarize construction monitoring and present the results of the fossil recovery program. The report would be prepared in accordance with SCE, Society of Vertebrate Paleontology guidelines, and lead agency requirements. The final report would be submitted to SCE, the lead agency, and the curation repository.	Ensure that a Final Paleontological Resource Recovery Report is prepared and submitted as specified in APM PALEO-7.	During construction	APM fully implemented as specified.
IMPACT PALEO-1: Direct of Indirect Damage or Destruction of Paleontological Resources	**APM PALEO-8: Curation.** Prior to construction, SCE would enter into a formal agreement with a recognized museum repository, and would curate the fossil collections, appropriate field and laboratory documentation, and final Paleontological Resource Recovery Report in a timely manner following construction.	See requirements in APM PALEO-8.	Prior to construction	Paleontological resources, if encountered, are recovered and preserved.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
3.7 Hazards, Health, and Safety				
IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials	**APM HAZ-2: Hazardous Materials and Waste Handling Management.** Hazardous materials used and stored on-site for the proposed construction activities, as well as hazardous wastes generated on-site as a result of the proposed construction activities, would be managed according to the specifications outlined below as follows: • **Hazardous Materials and Hazardous Waste Handling Program:** A Project-specific hazardous materials management and hazardous waste management program would be developed prior to initiation of the Project. The program would outline proper hazardous materials use, storage and disposal requirements, as well as hazardous waste management procedures. The program would identify types of hazardous materials to be used during the Project and the types of wastes that would be generated. All Project personnel would be provided with Project-specific training. This program would be developed to ensure that all hazardous materials and wastes were handled in a safe and environmentally sound manner. Hazardous wastes would be handled and disposed of according to applicable rules and regulations. Employees handling wastes would receive hazardous materials training and shall be trained in: hazardous waste procedures; spill contingencies; waste minimization procedures; and TSDF training in accordance with OSHA Hazard Communication Standard and 22 CCR. SCE would use landfill facilities that are authorized to accept treated wood pole waste in accordance with HSC 25143.1.4(b). • **Construction Stormwater Pollution Prevention Plan:** A Project-specific construction SWPPP would be prepared and implemented prior to the start of construction of the transmission line and substations. The SWPPP would use BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities (California Stormwater Quality Association 2004).	Ensure that a Hazardous Materials and Waste Handling Management Plan is prepared and implemented as specified in APM HAZ-2.	Prior to, during, and after construction and during operations	The plan is implemented and impacts from hazardous materials are avoided or minimized.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	• **Transport of Hazardous Materials:** Hazardous materials that would be transported by truck include fuel (diesel fuel and gasoline), and oil and lubricants for equipment. Containers used to store hazardous materials would be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials used would be established in accordance with USDOT, CalTrans, and NDOT regulations. A qualified transporter would be selected to comply with federal and state transportation regulations. • **Fueling and Maintenance of Construction Equipment:** Written procedures for fueling and maintenance of construction equipment would be prepared prior to construction. Vehicles and equipment would be refueled on-site or by tanker trucks. Procedures would include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations would be located in designated areas where absorbent pads and trays would be available. The fuel tanks would also contain a lined area to ensure that accidental spillage does not occur. Drip pans or other collection devices would be placed under the equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures. Hazardous materials such as paints, solvents, and penetrants would be kept in an approved locker or storage cabinet. • **Fueling and Maintenance of Helicopters:** Written procedures for fueling and maintenance of helicopters would be prepared prior to construction. Helicopters would be refueled at helicopter staging areas or local airports. Procedures would include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling areas would be located in designated areas where absorbent pads and trays are available. • **Emergency Release Response Procedures:** An Emergency Response Plan detailing responses to releases of hazardous materials would be developed prior to construction activities. It			

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of the quantity spilled, would be immediately reported if the spill has entered a navigable water, stream, lake, wetland, or storm drain if the spill impacted any sensitive area, including conservation areas and wildlife preserved, or if the spill causes injury to a person or threatens injury to public health. All construction personnel, including environmental monitors, would be aware of state and federal emergency response reporting guidelines.			
IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials	**APM HAZ-5: Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan.** **Spill Prevention, Countermeasure, and Control Plan.** In accordance with Title 40 of the CFR, Part 112, SCE would prepare a SPCC Plan for proposed and/or expanded substations. The plans would include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup. **Hazardous Materials Business Plans.** Prior to operation of new or expanded substations, SCE would prepare or update and submit, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, a HMBP. The required documentation would be submitted to the designated CUPA in California. (An HMBP or similar documentation is not required by the state of Nevada.) The HMBPs would include hazardous materials and hazardous waste management procedures, and emergency response procedures including emergency spill cleanup supplies and equipment.	Ensure that a Spill Prevention, Countermeasure, and Control Plan and Hazardous Materials Business Plan are prepared and implemented as specified in APM HAZ-5.	Prior to, during, and after construction and during operations	The plans are implemented and impacts from hazardous materials are avoided or minimized.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials	**MM HAZ-1: Worker Health and Safety and Environmental Training and Monitoring Program.** Prior to construction, the applicant will conduct a worker safety and environmental training program. As part of the program, the applicant will develop and implement a Health and Safety Plan. The Health and Safety Plan should address all potential situations that workers could encounter during construction and maintenance, including safety issues that may be unique to any of the alternatives. The Health and Safety Plan, at minimum, must require that first aid kits be stored in each construction vehicle and that a worker trained in first aid be included in each work group. The purpose and goal of the worker safety and environmental training will be to communicate project-related environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and BMPs, to all field and construction personnel prior to the start of construction. Training will also encompass environmental training related to road designations, speed limits, and restrictions on camping within the surrounding Boulder City Conservation Easement to ensure compatibility with neighboring land uses, promote "good neighbor" policies, and institute best management practices for construction. SCE will also conduct health and safety training for Operation and Maintenance activities.	Ensure that a Worker Health and Safety and Environmental Training and Monitoring Program is prepared and implemented as specified in MM HAZ-1.	Prior to and during construction and during operations and maintenance	Project-related environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and BMPs, are communicated to all field and construction personnel.
IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials	**MM HAZ-4: Disposal of Demolition Materials.** All debris generated during project-related demolition of structures, buildings, asphalt, or concrete-paved surface areas must be tested for the presence of hazardous chemicals, mercury, asbestos, and any other materials that may be deemed hazardous before disposal. The applicant will ensure that the materials are properly disposed of depending on the sampling results.	Ensure that all debris specified in MM HAZ-4 is tested and properly disposed of depending on the sampling results in compliance with MM HAZ-4.	Prior to and during construction and during operations and maintenance	Proper testing and disposal in full compliance with MM HAZ-4
IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials	**MM HAZ-5: Backfill Material.** If backfill material is used, it will be sampled and determined to be contaminant-free before it is used to fill excavations.	Ensure that any backfill material used is sampled and determined to be contaminant-free before use.	Prior to and during construction and during operations and maintenance	No contaminated backfill material is used for the project.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HAZ-1: Create Hazards through Routine Transport, Use, or Disposal of Hazardous Materials	**MM HAZ-6: EPA Identification Number.** If it is determined that hazardous waste will be generated during construction, the applicant will obtain an EPA Identification Number before construction begins. Before construction begins, the applicant will also determine whether the treatment or the handling or the storing of hazardous materials will require authorization of the local Certified Unified Program Agency (CUPA). If necessary, the applicant must receive authorization from the local CUPA before construction begins.	Ensure that an EPA Identification Number is obtained before construction begins if it is determined that hazardous waste will be generated during construction. Also, ensure CUPA authorization is obtained if deemed necessary.	Prior to construction.	EPA Identification Number/ CUPA authorization possessed by SCE, as required for hazardous materials, prior to construction.
IMPACT HAZ-2: Create Hazards through Accidental Release of Hazardous Materials into the Environment	**APM PUSVC-1: Work Around High Pressure Pipelines.** See below. **APM PUSVC-2: Monitoring by Pipeline Companies.** See below. **APM HAZ-2: Hazardous Materials and Waste Handling Management.** See above. **MM HAZ-1: Worker Health and Safety and Environmental Training and Monitoring Program.** See above. **MM HAZ-4: Disposal of Demolition Materials.** See above. **MM HAZ-5: Backfill Material.** See above. **MM HAZ-6: EPA Identification Number.** See above.	See above/below.	See above/below.	See above/below.
IMPACT HAZ-2: Create Hazards through Accidental Release of Hazardous Materials into the Environment	**APM HAZ-3: Soil Management Plan.** A Soil Management Plan would be developed and implemented for construction of the proposed project. The objective of the Soil Management Plan is to provide guidance for the proper handling, on-site management, and disposal of impacted soil that might be encountered during construction activities. The plan would include practices that are consistent with the California Title 8, OSHA regulations, as well as appropriate remediation standards that are protective of the planned use. Appropriately trained professionals would be on-site during preparation, grading, and related earthwork activities to monitor soil conditions encountered. The Soil Management Plan would provide guidelines for the following: • Identifying impacted soil	Ensure that a Soil Management Plan is prepared and implemented as specified in APM HAZ-3.	Prior to construction	APM fully implemented as specified.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	• Assessing impacted soil • Soil excavation • Impacted soil storage • Verification sampling • Impacted soil characterization and disposal In the event that potentially contaminated soils were encountered within the footprint of construction, soils would be tested and stockpiled. In California, the CUPA would determine whether further assessment is warranted. In Nevada, the NDEP BCA Spill Hotline (888-331- 6337) would be contacted if the quantity of impacted material is greater than 3 cubic yards.			
IMPACT HAZ-3: Expose the Public or Environment to Contaminated Soil or Groundwater	**APM HAZ-1: Phase I Environmental Site Assessment.** A Phase I Environmental Site Assessment would be performed at each new or expanded substation location and along newly acquired transmission or subtransmission line ROWs. The Phase I Environmental Site Assessment would include an electronic records search of federal, state, and local databases. The electronic records search would be contracted to a company which specializes in this type of work and who would produce a comprehensive report (Report) for the new or expanded ROW. The Report is used to identify sites located on federal, state, and local government agency databases which may have the potential to impact the proposed project. The Report would be reviewed and, based on such review, any potential areas of concern along the ROW would be identified for further assessment. In addition, a Phase I Environmental Site Assessment which is compliant with ASTM 1927-05 (ASTM 2005) would be performed on all property to be acquired. Based on the results of the Phase I Environmental Site Assessment, additional assessment, characterization, and remediation of potential or known subsurface impacts may be conducted prior to construction activities. Such remediation could include the relocation of transmission line structures as necessary to avoid impacted areas, or the removal and	Ensure that a Phase I ESA was conducted as specified in APM HAZ-1.	Prior to construction	Contaminated sites with the potential to impact the proposed project are identified and addressed as specified in APM HAZ-1.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	disposal of impacted soils and/or groundwater according to applicable regulations.			
IMPACT HAZ-3: Expose the Public or Environment to Contaminated Soil or Groundwater	**MM HAZ-3: Agency Coordination and Approvals.** Before initiating the Phase I Environmental Site Assessment, site investigation under the Soil Management Plan, and/or any remediation work, the applicant will develop and submit a work plan to the appropriate federal, state, and local regulatory authority to oversee hazardous waste investigations or cleanups. No work will begin without approval of the appropriate regulatory authorities. The applicant will submit results of all analytical reports to the appropriate regulatory authorities in a report that summarizes the sampling results in reference to regulatory standards. The applicant will submit all closure certification or remediation approval reports to the appropriate regulatory authorities. **MM HAZ-5: Backfill Material.** See above.	See requirements in MM HAZ-3.	Prior to Phase I Environmental Site Assessment, Prior to construction	Compliance with MM HAZ-3
IMPACT HAZ-4: Increase Safety Hazards for People Residing or Working Within Two Miles of a Public Airport or Public Use Airport	**APM LU-1: Aeronautical Considerations.** See below.	See below.	See below.	See below.
IMPACT HAZ-4: Increase Safety Hazards for People Residing or Working Within Two Miles of a Public Airport or Public Use Airport	**MM HAZ-2: Comply with FAA Requirements Upon Construction of the SNSA.** The applicant will comply with all FAA requirements upon construction of the SNSA.	Meet FAA requirements upon construction of the SNSA.	Prior to construction of the SNSA.	Design of the proposed project follows all FAA requirements and takes into consideration all FAA recommendations.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HAZ-5: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	**APM TRA-1: Obtain Permits.** See below. **APM TRA-2: Traffic Management and Control Plans.** See below.	See below.	See below.	See below.
IMPACT HAZ-6: Expose People or Structures to Wildland Fires	**APM HAZ-4: Fire Management Plan.** The Fire Management Plan developed by SCE and presented in this PEA as Appendix K would be implemented (National Fire Association 1994).	Ensure that a Fire Management Plan is implemented.	Prior to and during construction	APM implemented.
3.8 Hydrology and Water Quality				
IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater	**APM W-2: Erosion Control and Hazardous Material Plans.** Erosion control and hazardous material plans would be incorporated into the construction bidding specifications to ensure compliance.	See requirements in APM W-2.	Prior to construction	Erosion control and hazardous material plans are incorporated into construction bidding specifications.
IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater	**APM W-10: Emergency Release Response Procedures.** The Emergency Release Response Procedures developed pursuant to APM HAZ-1 would be maintained onsite (or in vehicles) during construction of the proposed project.	See requirements in APM W-10.	During construction	Emergency Release Response Procedures are maintained onsite (or in vehicles) during construction.
IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater	**APM W-12: Properly Dispose of Hazardous Materials.** All construction and demolition waste, including trash and litter, garbage, and other solid waste, would be removed and transported to an appropriately permitted disposal facility. Petroleum products and other potentially hazardous materials would be removed and transported to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.	See requirements in APM W-12.	During construction	All waste is disposed of properly.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater	**APM W-13: Identify Location of Underground Utilities Prior to Excavation.** Prior to excavation, the applicant or its contractors would locate overhead and underground utility lines, such as natural gas, electricity, sewage, telephone, fuel, and water lines, or other underground structures that may reasonably be expected to be encountered during excavation work.	See requirements in APM W-13.	Prior to construction	All existing overhead and underground utility lines that may be encountered are identified.
IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater	**MM W-1: Erosion Control Plan and Compliance with Water Quality Permits.** The applicant will employ a professional engineer to develop and implement an Erosion Control Plan and monitor construction activities to ensure compliance with federal and state water quality permits. The Erosion Control Plan will comply with or exceed BMPs commonly used on projects in the California/Nevada area and those outlined in county plans. Copies of the Erosion Control Plan will be submitted to CPUC. MM W-1 will also serve to strengthen APMs W-1, W-4, and W-5 to include all intermittent and ephemeral streams and desert washes as depicted on USGS and NHD mapping and those identified during the applicant's field reconnaissance surveys. The intent of this MM is to minimize the impact of construction on surface water quality in the basins surrounding the proposed project. This MM will apply to all construction sites for the duration of construction and restoration activities.	Ensure that an Erosion Control Plan is developed and implemented as specified in MM W-1.	Prior to and during construction	Erosion Control Plan is developed and implemented to minimize the impact of construction on surface water quality and compliance with federal and state water quality permits is maintained.
IMPACT HYDRO-1: Introduction of Hazardous Contamination into Surface and Groundwater	MM W-6: DESCP, SWPPP, and Grading and Storm Water Management Plan for Ivanpah Substation. The applicant will be required to submit copies of the approved Drainage, Erosion, and Sediment Control Plan (DESCP) and Storm Water Pollution Prevention Plan (SWPPP) to CPUC three months prior to the start of construction, and implement those plans as part of the EITP.	Ensure that DESCP, SWPPP, and Grading and Storm Water Management Plans for Ivanpah Substation are developed and implemented as specified in MM W-6.	Prior to and during construction	DESCP, SWPPP, and Grading and Storm Water Management Plans are developed and implemented to minimize the impact of construction on surface water

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
				quality at the Ivanpah Substation.
IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge	**APM W-1: Avoid Stream Channels.** Construction equipment would be kept out of flowing stream channels.	See requirements in APM W-1.	Prior to and during construction	APM fully implemented as specified.
IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge	**APM W-6: Collect and Divert Runoff.** Runoff from roadways would be collected and diverted from steep, disturbed, or otherwise unstable slopes.	See requirements in APM W-6.	During construction	APM fully implemented as specified.
IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge	**APM W-7: Ditch and Drainage Design.** Ditches and drainage devices would be designed to handle the concentrated runoff and located to avoid disturbed areas. They would have energy dissipations at discharge points that might include rip-rap, concrete aprons, and stepped spillways. Where diversion dikes are required to protect towers or other project structures from flooding or erosion, these dikes would be designed to avoid increasing the risk of erosion or flooding onto adjacent property.	Ensure that ditches and drainage devices are be designed to handle the concentrated runoff and located to avoid disturbed areas. Ensure that diversion dikes are designed to avoid increasing the risk of erosion or flooding onto adjacent property.	Prior to and during construction	APM fully implemented as specified.
IMPACT HYDRO-2: Lowering of Water Table or Interference with Aquifer Recharge	**MM W-2: Water Use Maximum.** The applicant has estimated using a maximum of between 32,000 and 40,000 gpd of water for the construction phase of the project. This translates to between 30.6 and 38.3 acre-ft/yr. The applicant has stated that no water would be used during the operational phase of the project. Under MM W-2, the applicant will limit construction phase water use to a maximum of 45 acre feet per annum. The applicant will not use water during the operational phase of the project. Emergency water uses, including fire suppression, are excluded from these maxima. If the applicant requires additional water for construction or operation of the project, the applicant must submit a request to the CPUC and the BLM.	Ensure that a Water Use Plan is developed and implemented as specified in MM W-2.	Prior to and during construction	Water Use Plan is developed, approved, and implemented and water use for project activities does not exceed the maximum volumes specified in the plan.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns	**APM W-3: Project Design Features.** See above. **APM W-4: Avoid Active Drainage Channels.** See above.	See above.	See above.	See above.
IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns	**APM W-5: Diversion Dikes.** Diversion dikes would be required to divert runoff around a tower structure or a substation site if (a) the location in an active channel (or channels) could not be avoided; and (b) where there is a very significant flood scour/deposition threat, unless such diversion is specifically exempted by the CPUC and/or the BLM Authorized Officer.	See requirements in APM W-5.	During construction and operations	Diversion dikes, where required by APM W-5, divert runoff around tower structures.
IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns	**APM W-6: Collect and Divert Runoff.** Runoff from roadways would be collected and diverted from steep, disturbed, or otherwise unstable slopes	See requirements in APM W-6.	During construction	Runoff from roadways is collected and diverted from unstable slopes.
IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns	**APM W-7: Ditch and Drainage Design.** Ditches and drainage devices would be designed to handle the concentrated runoff and located to avoid disturbed areas. They would have energy dissipations at discharge points that might include rip-rap, concrete aprons, and stepped spillways. Where diversion dikes are required to protect towers or other project structures from flooding or erosion, these dikes would be designed to avoid increasing the risk of erosion or flooding onto adjacent property.	See requirements in APM W-7.	During construction	Ditches and drainage devices are designed as specified in APM W-7.
IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns	**APM W-8: Minimize Cut and Fill Slopes.** Cut and fill slopes would be minimized by a combination of benching and following natural topography where possible.	See requirements in APM W-8.	During construction	The amount of cut and fill slopes is minimized.
IMPACT HYDRO-3: Increased Erosion or Siltation due to Alteration of Surface Drainage Patterns	**MM W-1: Erosion Control Plan and Compliance with Water Quality Permits.** See above.	See above.	See above.	See above.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HYDRO-4: Altered Course of Stream or River due to Modification of Surface Drainage Patterns	**APM W-1: Avoid Stream Channels.** Construction equipment would be kept out of flowing stream channels.	See requirements in APM W-1.	During construction	Construction equipment is kept out of flowing stream channels.
IMPACT HYDRO-4: Altered Course of Stream or River due to Modification of Surface Drainage Patterns	**APM W-4: Avoid Active Drainage Channels.** See above.	See above.	See above.	See above.
IMPACT HYDRO-4: Altered Course of Stream or River due to Modification of Surface Drainage Patterns	**MM W-3: Onsite Flow Model and Channel System.** The applicant will employ a hydrologist to develop an Onsite Flow Model to predict any alteration in flow path that would result from construction and operation and maintenance of the proposed project. The applicant will also develop a channel system to prevent erosion and to mitigate altered flow paths. The Onsite Flow Model and channel system design will be submitted to the CPUC for review at least three months prior to the start of construction. The intent of this MM is to ensure that stormwater runoff will not cause flooding. The applicant will monitor the channel system throughout construction to assess effectiveness and ensure compliance with the designed system. Additionally, the applicant will coordinate with BLM and CPUC on model parameters and assumptions used in modeling.	Ensure that an Onsite Flow Model is developed and used as specified in MM W-3.	Prior to and during construction	Stormwater runoff does not cause flooding.
IMPACT HYDRO-4: Altered Course of Stream or River due to Modification of Surface Drainage Patterns	**MM W-4: Dry Lake Restoration Plan.** The applicant will employ a hydrologist and a restoration specialist to develop a Restoration Plan for disturbance of dry lake beds. The proposed project would cross through Ivanpah Lake. Construction would disturb the flat dry lake bed surface that is used for recreation. The intent of this MM is to ensure that the dry lake bed is restored to preconstruction conditions. The BLM will review the plan prior to the start of construction. The BLM would also assess the success of the restoration and determine whether the Ivanpah Lake surface had been restored to preconstruction conditions. In addition, the applicant will coordinate with the BLM the submission of the plan to the CDFG for CDFG review. The applicant will provide the CPUC with a copy	Ensure that a Dry Lake Restoration Plan is developed and used as specified in MM W-4.	Prior to and during construction	Dry lake beds impacted by the proposed project are restored to preconstruction conditions.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	of the Restoration Plan.			
IMPACT HYDRO-5: Modified Runoff Characteristics That Exceed Existing Stormwater Systems, Possibly leading to Flooding or Inundation by Mudflow	**APM W-5: Diversion Dikes.** See above. **APM W-6: Collect and Divert Runoff.** See above. **APM W-7: Ditch and Drainage Design.** See above.	See above.	See above.	See above.
IMPACT HYDRO-5: Modified Runoff Characteristics That Exceed Existing Stormwater Systems, Possibly leading to Flooding or Inundation by Mudflow	**MM W-5: Historical Hydrological Model of Alluvial Fan.** In the PEA, the applicant completed a historical hydrological model on site area alluvial fan(s) based on similar work on alluvial fans performed near Laughlin, Nevada (House 2005). The applicant extrapolated the data by applying the methodology from the Laughlin area model to the California portion of the project area. This study will be used to determine the active and inactive portions of the alluvial fans in the site area relative to surface water, sediment transport, and flash flooding. Where feasible, the applicant will locate towers, substations, and other permanent site features on inactive portions of the alluvial fan to minimize risk associated with flash flooding and alluvial fan failure.	See requirements in MM W-5.	Prior to construction	Mitigation measure implemented as specified.
IMPACT HYDRO-6: Substantially Degrade Water Quality	**APM W-2: Erosion Control and Hazardous Material Plans.** See above. **APM W-4: Avoid Active Drainage Channels.** See above.	See above.	See above.	See above.
IMPACT HYDRO-6: Substantially Degrade Water Quality	**APM W-9: Prepare and Implement an Approved SWPPP.** As a part of the SWPPP, soil disturbance at tower construction sites and access roads would be the minimum necessary for construction and designed to prevent long-term erosion through the following activities: restoration of disturbed soil, re-vegetation, and/or construction of permanent erosion control structures. BMPs in the project SWPPP would be implemented during construction to minimize the risk of an accidental release.	Ensure that a SWPPP approved and implemented as specified in APM W-9.	Prior to and during construction	APM fully implemented as specified.
IMPACT HYDRO-6: Substantially Degrade Water Quality	**MM W-1: Erosion Control Plan and Compliance with Water Quality Permits.** See above. **MM W-3: Onsite Flow Model and Channel System.** See above.	See above.	See above.	See above.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT HYDRO-7: Placement of Structures within a 100-year Flood Hazard Area	**APM W-3: Project Design Features.** See above. **APM W-5: Diversion Dikes.** See above.	See above.	See above.	See above.
IMPACT HYDRO-8: Exposure to a Significant Risk of Flooding	**APM W-1: Avoid Stream Channels.** See above. **APM W-4: Avoid Active Drainage Channels.** See above. **APM W-5: Diversion Dikes.** See above. **APM W-7: Ditch and Drainage Design.** See above. **MM W-5: Historical Hydrological Model of Alluvial Fan.** See above.	See above.	See above.	See above.
IMPACT HYDRO-9: Modify runoff Characteristics, Possibly Leading to Flooding or Inundation by Mudflow	**APM W-1: Avoid Stream Channels.** See above. **APM W-4: Avoid Active Drainage Channels.** See above. **APM W-5: Diversion Dikes.** See above. **APM W-7: Ditch and Drainage Design.** See above. **MM W-5: Historical Hydrological Model of Alluvial Fan.** See above.	See above.	See above.	See above.
3.9 Land Use				
IMPACT LU-1: Conflict with applicable Plans and Policies	**APM LU-1: Aeronautical Considerations.** The applicant would submit notice to FAA electronically, in accordance with FAA procedures, and as far in advance of construction as possible.	See requirements in APM LU-1.	Prior to construction	APM implemented.
IMPACT LU-1: Conflict with applicable Plans and Policies	**MM LU-1: Obtain Approval from Clark County and the City of Boulder City for Activities Outside of BLM-Designated Utility Corridors in the BCCE.** Prior to construction, the applicant must consult with and obtain permission from Clark County and the City of Boulder City regarding construction outside of BLM-designated utility corridors in the BCCE. In addition, the applicant will comply with all land use restrictions, such as speed limits, in consultation with the BCCE, and will fully comply with the Amendment to the Interlocal Agreement, including Exhibit D. The applicant will submit a record of this consultation to the BLM and the CPUC prior to construction.	Ensure that the applicant consults with Clark County and Boulder City for activities outside of BLM-designated utility corridors in the Boulder City Conservation Easement (BCCE) as specified in MM LU-1.	Prior to construction	Mitigation measure fully implemented.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT LU-1: Conflict with applicable Plans and Policies	**MM HAZ-2: Comply with FAA Requirements Upon Construction of the SNSA.** See above.	See above.	See above.	See above.
3.10 Noise				
IMPACT NOI-1: Project construction noise exceeding noise levels or standards	**APM NOI-1: Compliance with Local Noise Ordinances.** The proposed construction would comply with local noise ordinances. There may be a need to work outside the aforementioned local ordinances to take advantage of low electrical draw periods during the nighttime hours. The applicant would comply with variance procedures requested by local authorities if required.	See requirements in APM NOI-1.	During construction	APM fully implemented as specified.
IMPACT NOI-1: Project construction noise exceeding noise levels or standards	**APM NOI-2: Construction Equipment Working Order.** Construction equipment would be in good working order.	See requirements in APM NOI-2.	During construction	Construction equipment is in good working order.
IMPACT NOI-1: Project construction noise exceeding noise levels or standards	**APM NOI-3: Construction Equipment Maintenance.** Construction equipment would be maintained per manufacturer's recommendations.	See requirements in APM NOI-3.	During construction	Construction equipment is maintained per manufacturer recommendations.
IMPACT NOI-1: Project construction noise exceeding noise levels or standards	**APM NOI-4: Construction Equipment Muffled.** Construction equipment would be adequately muffled.	See requirements in APM NOI-4.	During construction	Construction equipment is muffled.
IMPACT NOI-1: Project construction noise exceeding noise levels or standards	**APM NOI-5: Construction Equipment Idling Minimized.** Idling of construction equipment and vehicles would be minimized during the construction.	See requirements in APM NOI-5.	During construction	See MM NOI-3.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT NOI-1: Project construction noise exceeding noise levels or standards	**MM NOI-1: Conduct Construction Activities during Daytime Hours.** The applicant will conduct construction activities only during daytime hours (7 a.m. to 7 p.m.) while in the vicinity of the Desert Oasis Apartment Complex.	See requirements in MM NOI-1.	During construction	Complaints about construction activities from residents of the Desert Oasis Apartment Complex are minimized.
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**APM NOI-2: Construction Equipment Working Order.** See above. **APM NOI-3: Construction Equipment Maintenance.** See above. **APM NOI-4: Construction Equipment Muffled.** See above. **APM NOI-5: Construction Equipment Idling Minimized.** See above.	See above.	See above.	See above.
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**APM NOI-6: Hearing Protection for Workers.** Workers would be provided appropriate hearing protection, if necessary, as described in the Health and Safety Plan.	See requirements in APM NOI-6.	During construction	APM implemented.
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**MM NOI-1: Conduct Construction Activities during Daytime Hours.** See above.	See above.	See above.	See above.
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**MM NOI-2: Relocate Stationary Construction Equipment.** The applicant will locate stationary construction equipment at a site location that is as far away from the Desert Oasis Apartment Complex as is feasible.	See requirements in MM NOI-2.	During construction	Complaints about construction activities from residents of the Desert Oasis Apartment Complex are minimized.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**MM NOI-3: Turn off Idling Equipment.** The applicant will turn off idling equipment when not in use.	See requirements in MM NOI-3.	During construction	Construction equipment and vehicles are not allowed to idle when not in use.
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**MM NOI-4: Notify Adjacent Residences.** The applicant will notify residents within 200 feet of the transmission line in advance of construction work.	See requirements in MM NOI-4.	Prior to construction	Residents within 200 feet of the transmission line are notified in advance of construction work.
IMPACT NOI-5: Cause a substantial temporary increase in ambient noise levels in the project vicinity	**MM NOI-5: Install Acoustic Barriers.** The applicant will install acoustic barriers around stationary construction noise sources near sensitive receptors.	See requirements in MM NOI-5.	During construction	Stationary construction noise reduction is achieved near sensitive receptors.
3.11 Public Services and Utilities				
IMPACT PUSVC-1: Emergency services needed in response to an accident or other emergency incident associated with the proposed project	**APM HAZ-4: Fire Management.** See above. **APM TRA-2: Traffic Management and Control Plans.** See below. **APM TRA-3: Minimize Street Use.** See below.	See above/below.	See above/below.	See above/below.
IMPACT PUSVC-1: Emergency services needed in response to an accident or other emergency incident associated with the proposed project	**APM PUSVC-1: Work Around High Pressure Pipelines.** No mechanical equipment will be permitted to operate within 3 feet of the high-pressure pipelines, and work within 3 feet must be done by hand or as otherwise directed by the pipeline company.	See requirements in APM PUSVC-1.	During construction	Existing pipelines are not damaged during construction of the proposed project.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT PUSVC-1: Emergency services needed in response to an accident or other emergency incident associated with the proposed project	**APM PUSVC-2: Monitoring by Pipeline Companies.** A representative of applicable owners and operators of major pipeline companies must observe the excavation around or near their facilities to ensure protection and to record pertinent data necessary for operations.	See requirements in APM PUSVC-2.	During construction	Existing pipelines are not damaged during construction of the proposed project.
IMPACT PUSVC-1: Emergency services needed in response to an accident or other emergency incident associated with the proposed project	**MM HAZ-1: Worker Health and Safety and Environmental Training and Monitoring Program.** See above.	See above.	See above.	See above.
NEPA IMPACT: Result in a major reduction or interruption of existing utility systems by crossing or sharing a location with another utility.	**MM PUSVC-2: Notification of Utility Service Interruption.** If a utility service interruption is known to be unavoidable, the applicant will notify by postal mail members of the public, the jurisdiction, and the service providers who would be affected. The applicant will also publish notices in newspapers circulated in each jurisdiction that would be affected. The postal mail and newspaper notices will specify the estimated duration of each service interruption and be mailed or published no later than seven days prior to the first interruption. Copies of the notices will be provided to the BLM and CPUC no later than 30 days following notification.	See requirements in MM PUSVC-2.	Prior to and during construction	Mitigation measure is fully implemented as specified.
IMPACT PUSVC-2: Project construction temporarily increases water use, and project operation contributes to increased long-term water consumption	**MM W-2: Water Use Plan.** See above.	See above.	See above.	See above.
IMPACT PUSVC-2: Project construction temporarily increases water use, and project	**MM PUSVC-1: Construction Waste Disposal Plan.** The applicant will prepare a Construction Waste Disposal Plan for all nonhazardous wastes generated during construction of the proposed project and submit the plan to the BLM and the CPUC for review and approval no less than 30	Ensure that a Construction Waste Disposal Plan is prepared and implemented as specified in MM PUSVC-1.	30 days prior to and during construction	Nonhazardous waste is recycled or salvaged to the

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
operation contributes to increased long-term water consumption	days prior to start of construction. The plan will contain the following, at a minimum: • Description of all nonhazardous solid and liquid construction wastes, including: – Estimated amounts to be disposed of in a landfill by weight or volume and – Estimated amounts that can be recycled or salvage by weight or volume; • Recycling, salvage, and waste minimization/source reduction plans; • Management methods to be used for each type of waste, including temporary on-site storage, housekeeping and best management practices to be employed, and methods of transportation and packaging; and • Description and list of all contracts and plans made with waste contractors, landfills, and wastewater treatment facilities. The applicant may refer to internal salvage and waste manuals in the Construction Waste Management Plan where applicable. The plan is necessary to ensure that solid waste is recycled or salvaged to the maximum extent possible. In addition, the applicant would need to observe the Nevada Legislature's goal to recycle 25 percent of total solid waste generated within each municipality of Nevada.			maximum extent possible.
IMPACT PUSVC-3: Solid waste generated during construction of the project exceeds landfill requirements	**MM PUSVC-1: Construction Waste Disposal Plan.** See above.	See above.	See above.	See above.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT PUSVC-4: Solid waste generated during construction of the project results in noncompliance with federal, state, or local statutes, regulations, or policies	**MM PUSVC-1: Construction Waste Disposal Plan.** See above.	See above.	See above.	See above.
3.12 Recreation				
IMPACT REC-1: Disruption of Access to Existing Recreation Opportunities	**APM REC-1: Recreation Area Closures.** When temporary short-term closures to recreational areas are necessary for construction activities, the applicant would coordinate those closures with recreational facility owners. To the extent practicable, the applicant would schedule construction activities to avoid heavy recreational use periods (e.g., holidays or tournaments). The applicant would post notice of the closure on-site 14 calendar days prior to the closure.	See requirements in APM REC-1.	Prior to construction	APM fully implemented as specified.
IMPACT REC-1: Disruption of Access to Existing Recreation Opportunities	**MM REC-1: Limit Construction Workspace in Wildlife and Recreational Areas.** The applicant will not site extra workspace areas such as contractor yards in Recreation Areas to minimize impacts on recreational users during construction. In addition, the applicant will coordinate with the BLM, as well as organizers of BLM-permitted races and events in the project area, to ensure that project construction will not interrupt events.	See requirements in MM REC-1.	During construction	The applicant does not site extra workspace areas such as contractor yards in recreation areas.
IMPACT REC-1: Disruption of Access to Existing Recreation Opportunities	**MM REC-2: Notify the Nevada Department of Wildlife of Any Road Closures During Hunting Season.** To allow access for hunters in the area, the applicant will not close the southern right-of-way of the McCullough Pass during construction. The applicant will notify NDOW of any road closures during hunting season at least 30 days prior to closure.	Verify NDOW has been notified.	Prior to and during construction.	NDOW notified of road closures in advance. Southern right-of-way of the McCullough Pass not closed during construction.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
Clarification of roads available for OHV usage (NEPA Only Impact).	**MM REC-3: Display Appropriate "Closed" Signage for New Spur Roads Constructed in Nevada.** The applicant will coordinate with BLM Field Offices on displaying appropriate "closed" signage at the entrance to new spur roads to tower locations and access roads. This includes temporary signs during the construction phase of the project and permanent signs and/or vehicle barriers that will close the spur routes to public travel.	Ensure posting of "closed" signage for project spur roads located in Nevada.	Prior to, during, and after construction.	Claity for OHV users that spur roads in NV are closed.
3.13 Socioeconomics, Population and Housing, and Environmental Justice				
No impact	No applicable APMs or mitigation measures			
3.14 Traffic and Transportation				
IMPACT TRANS-1: Traffic Load and Capacity	**APM TRA-2: Traffic Management and Control Plans.** Traffic control and other management plans will be prepared where necessary to minimize project impacts on local streets and railroad operations.	See requirements in APM TRA-2.	Prior to and during construction	Project impacts on local streets and railroad operations are minimized.
IMPACT TRANS-2: Impact Level of Service Standard and Lane Closures	**APM TRA-1: Obtain Permits.** If any work requires modifications or activities within local roadway and railroad ROWs, appropriate permits will be obtained prior to the commencement of construction activities, including any necessary local permits and encroachment permits.	See requirements in APM TRA-1.	Prior to construction	APM implemented.
IMPACT TRANS-2: Impact Level of Service Standard and Lane Closures	**AMP TRA-2: Traffic Management and Control Plans.** See above.	See above.	See above.	See above.
IMPACT TRANS-2: Impact Level of Service Standard and Lane Closures	**APM TRA-3: Minimize Street Use.** Construction activities will be designed to minimize work on, or use of, local streets.	See requirements in APM TRA-3.	During construction	Street use for construction activities is minimized.
IMPACT TRANS-2: Impact Level of Service Standard and Lane Closures	**MM TRANS-1: No Lane Closures on I-15 during Friday Peak Usage.** The applicant will limit construction activities on Friday afternoon from noon to 10 p.m. so as not to require lane closures on I-15.	Ensure that construction activities do not occur on Friday afternoon from noon to 10 p.m. to avoid lane closures on I-15.	During construction	No lane closures occur on I-15 due to project activities.

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
IMPACT TRANS-2: Impact Level of Service Standard and Lane Closures	**MM TRANS-3: Traffic Control Plan.** Prior to start of construction of the EITP, the applicant will prepare and implement a Traffic Control Plan for the project to address staggering of deliveries on I-15 during peak traffic times.	Ensure that a Traffic Control Plan is prepared and implemented as specified in MM TRANS-2	Prior to and during construction	Deliveries staggered on I-15 during peak traffic times in accordance with theTraffic Control Plan.
IMPACT TRANS-4: Result in a Change in Air Traffic Patterns	**MM TRANS-2: Helicopter Flight Plan and Safety Plan.** At least 30 days prior to construction of the project, the applicant will coordinate with the FAA for review and approval of any helicopter flight plans that would take place during construction and operation. The applicant will then provide information to the BLM and the CPUC regarding the intended need and use of helicopters during construction and operation of the project, including the flight and safety plan; the number of days and hours that the helicopter would operate; the type and number of helicopters that would be used; the location, size, and number of staging areas for helicopter take off and landing; and written approval from property owners for use of helicopter staging areas. The applicant will review the helicopter flight and safety plan with the FAA and the CCDOA at least 30 days prior to the start of SNSA construction and resubmit the revised plan to the BLM and the CPUC.	Ensure that a Helicopter Flight Plan and Safety Plan is developed and implemented and helicopter use information is provided to the BLM and CPUC as specified in MM TRANS-2. Ensure that if construction of the Southern Nevada Supplemental Airport (SNSA) is approved, the applicant consults with the FAA at least 30 days prior to the start of SNSA construction and revises the Helicopter Flight Plan and Safety Plan as necessary.	30 days prior to construction	Mitigation measure fully implemented as specified.
Cumulative Impact TRANS-C-1: Traffic Load, Capacity, and Level of Service	**MM-C-TRANS-1: I-15 Use Limits.** MM-C-TRANS-1 will require the applicant to limit the use of I-15 on Fridays from noon to 10 p.m. This will require using alternative routes or planning sufficiently such that vehicular use of I-15 would be limited to fewer than 15 vehicles every 15 minutes, resulting in a minor, short-term cumulative impact. Implementation of this mitigation measure would reduce the EITP's incremental contribution to less than significant or minor. EITP construction would result in short-term adverse traffic impacts where vehicles and equipment would enter or leave construction yards and at crossing points along the transmission line route. Crossing points which are in and near Primm, were considered for this cumulative analysis. However, these effects, even when combined with the existing traffic in Primm and the reasonably foreseeable future projects that would	See requirements in MM-C-TRANS-1.	Prior to and during construction	Limited use of I-15 on Fridays from noon to 10 p.m accordance with MM-C-TRANS-1

Table 9-2 Mitigation Monitoring Plan

Type of Impact	Applicant Proposed Measures (APMs) and Mitigation Measures (MMs)	Monitoring Requirements	Timing	Determination of Effectiveness
	be located in and near Primm (DesertXpress Rail Line, Calnev Pipeline Expansion, First Solar, and Silver State), are so localized and temporary that they would not measurably change the existing conditions; therefore, no cumulative impacts on ground traffic would occur.			

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